

## SERVICE MANUAL

<OWNER'S MANUAL/INSTALLATION MANUAL>



## Super Heat Recovery Multi System Air Conditioner

The indoor unit in Super Heat Recovery Multi System is common to one in Super Modular Multi System air conditioner. Therefore refer to the service manuals for A03-011 separately issued.

### Indoor Unit

<4-way Air Discharge Cassette Type>

MMU-AP0091H, AP0121H, AP0151H,  
MMU-AP0181H, AP0241H, AP0271H,  
MMU-AP0301H, AP0361H, AP0481H,  
MMU-AP0561H

<2-way Air Discharge Cassette Type>

MMU-AP0071WH, AP0091WH, AP0121WH,  
MMU-AP0151WH, AP0181WH, AP0241WH,  
MMU-AP0271WH, AP0301WH

MMU-AP0481WH (CHINA market only)

<1-way Air Discharge Cassette Type>

MMU-AP0071YH, AP0091YH, AP0121YH,  
MMU-AP0151SH, AP0181SH, AP0241SH

<Concealed Duct Standard Type>

MMD-AP0071BH, AP0091BH, AP0121BH,  
MMD-AP0151BH, AP0181BH, AP0241BH,  
MMD-AP0271BH, AP0301BH, AP0361BH,  
MMD-AP0481BH, AP0561BH

<Concealed Duct High Static Pressure Type>

MMD-AP0181H, AP0241H, AP0271H,  
MMD-AP0361H, AP0481H

<Under Ceiling Type>

MMC-AP0151H, AP0181H, AP0241H,  
MMC-AP0271H, AP0361H, AP0481H

<High Wall Type>

MMK-AP0071H, AP0091H, AP0121H,  
MMK-AP0151H, AP0181H, AP0241H

<Floor Standing Cabinet Type>

MML-AP0071H, AP0091H, AP0121H,  
MML-AP0151H, AP0181H, AP0241H

<Floor Standing Concealed Type>

MML-AP0071BH, AP0091BH, AP0121BH,  
MML-AP0151BH, AP0181BH, AP0241BH

<Floor Standing Type>

MMF-AP0151H, AP0181H, AP0241H,  
MMF-AP0271H, AP0361H, AP0481H,  
MMF-AP0561H

### Outdoor Unit

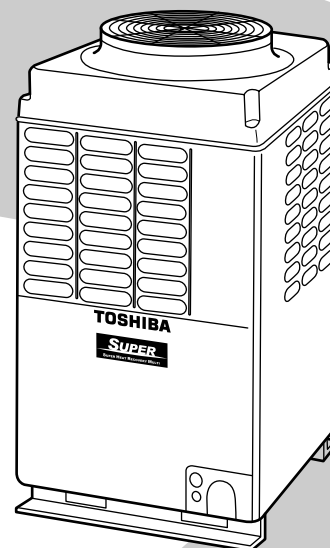
#### Heat Recovery Model

<Inverter Unit>

MMY-MAP0801FT8, MAP1001FT8  
MMY-MAP1201FT8

### Flow Selector Unit (FS unit)

RBM-Y1121FE  
RBM-Y1801FE



### **ADOPTION OF NEW REFRIGERANT**

This Air Conditioner is a new type which adopts a new refrigerant HFC(R410A) instead of the conventional refrigerant R22 in order to prevent destruction of the ozone layer.

Thank you very much for purchasing TOSHIBA Air Conditioner.  
Please read this manual carefully before using your Air Conditioner.

•Be sure to obtain the "Owner's manual" and "Installation manual" constructor (or dealer).

Request to constructor or dealer

Please clearly explain the contents of the Owner's manual and hand over it.

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## Flow Selector Unit

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## PRECAUTIONS FOR SAFETY

### ⚠ WARNING

#### Warning on installation

**Be sure to leave the installation work to the dealer or a store specializing.**

The exclusive knowledge and technology are required for installation work.

Do not perform installation by yourself. If an incomplete installation is performed, a fire, electric shock, injury, or water leakage may be caused.

**Be sure to use the products sold separately which are specified by us.**

For the products sold separately, be sure to use those specified by us. Otherwise, a fire, electric shock, or water leakage may be caused. For installation work, leave it to special engineer.

**When installing the units in a small room, take measures so that the refrigerant will not exceed the critical concentration if it leaks.**



### CAUTION

Related to countermeasures against the critical concentration, perform the installation work upon consultation with the dealer. If the refrigerant leaks and exceeds the critical concentration, oxygen deficiency may be caused.

**Check whether earthing work is performed correctly.**

A grounding is necessary. If the earthing work is incompletely, an electric shock may be caused. (For details, conform to the local regulation in each area.)

#### Warning on use

**Do not expose your body directly in cool air for a long time, or do not cool you excessively.**

It causes the worse of physical condition or trouble on health.

**Never insert a finger or bar into the air inlet port or air outlet port of air.**

Since the fan rotates in high speed inside of the unit, an injury may be caused.

**When a trouble (burnt smell, etc.) is felt, stop the operation, turn off the power switch, and contact the dealer who you have purchased the air conditioner.**

If keeping operation as the air conditioner is defective, a fire, electric shock, or trouble may be caused.

**Do not use "Super HRM" for other than personal usage where the ambient temperature may go down below  $-5^{\circ}\text{C}$ .**

For example, OA equipment/Electric device/Food/Animals and plants/Art object.



#### Warning on moving/repair

**Never modify the air conditioner.**

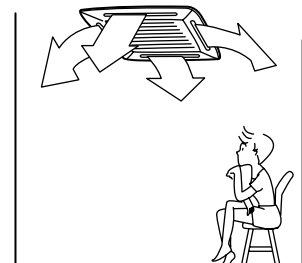
A fire or electric shock may be caused.

**For repair, leave it to the dealer which you have purchased the air conditioner.**

If an incomplete repair is performed, a fire or electric shock may be caused.

**When moving or re-installing the air conditioner, contact the dealer which you have purchased the air conditioner or the special engineer.**

If an incomplete installation is performed, a fire, electric shock, injury, or water leakage may be caused.



## ⚠ CAUTION

### Caution on installation

**Check the drain pipes are installed so that they can drain water securely.**

If the piping is incomplete, water leakage occurs resulted in moisture on furniture.

**Check the earth leakage breaker is attached.**

It is necessary to attach an earth leakage breaker. Otherwise, it causes an electric shock.

**Check the air conditioner is installed at a place where flammable gas will not leak.**

If gas leaks and accumulates in the unit surroundings, an outbreak of fire may be caused.

**Check the outdoor unit is fixed on the base.**

If it is not fixed securely on the base, an accident such as falling may be caused.

### Check fixing method

**Do not clean the air conditioner with water.**

An electric shock may be caused.

**Do not put the combustible devices at a place where air from the air conditioner flows directly.**

Imperfect combustion of the combustible devices may be caused.

**Diligently ventilate the room when operating the air conditioner with the combustible devices.**

If ventilation is incomplete, shortage of oxygen may be caused.

**Check the installation plate, etc. is not damaged by use for a long time.**

If leaving them damaged, the unit may fall resulted in injury, etc.

**Do not put plants and animals at a place where air from the air conditioner flows directly.**

Cause to affect on plants and animals may generate.

**Do not put flammable spray, etc. near the air conditioner, or do not spray directly on the air conditioner.**

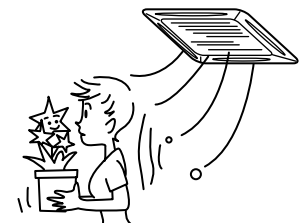
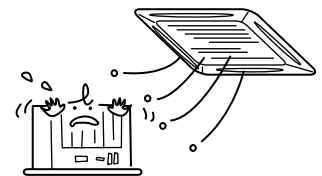
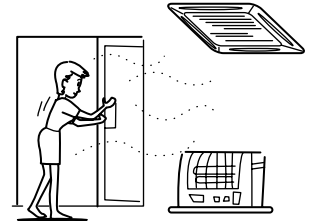
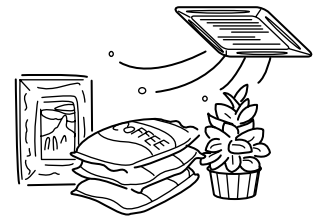
A fire may be caused.

**Do not put vessels including water such as a vase on the unit.**

Moisture floods in the unit, the electric isolation deteriorates, and an electric shock may be caused.

**Do not handle the switches with wet hands.**

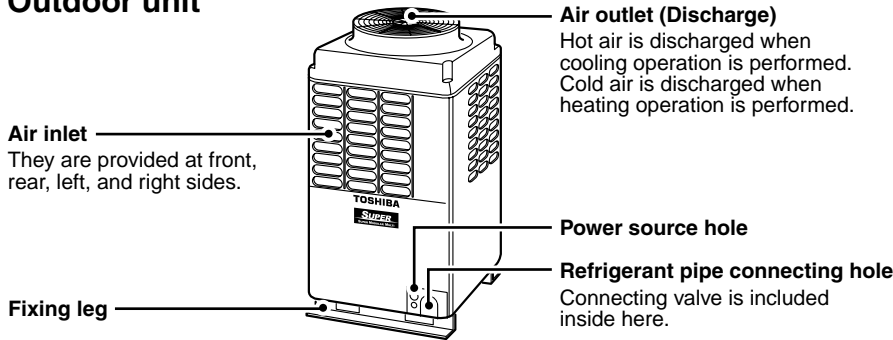
An electric shock may be caused.



# Outdoor Unit / OWNER'S MANUAL

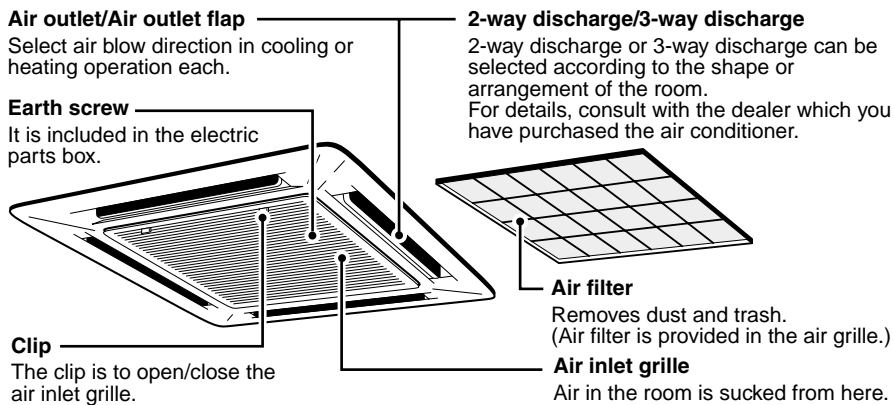
## NAME OF EACH PART

### Outdoor unit

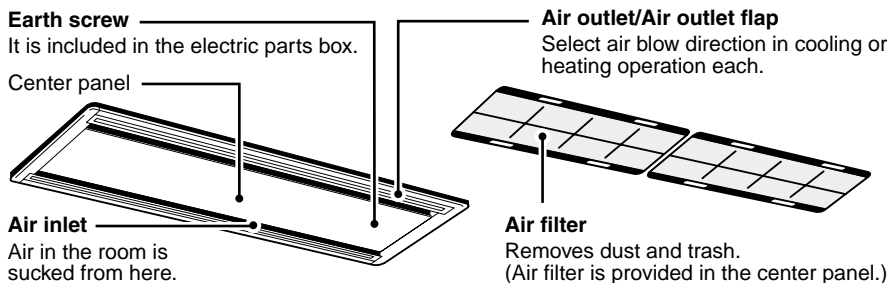


### Indoor unit

#### [4-way Air Discharge Cassette Type]

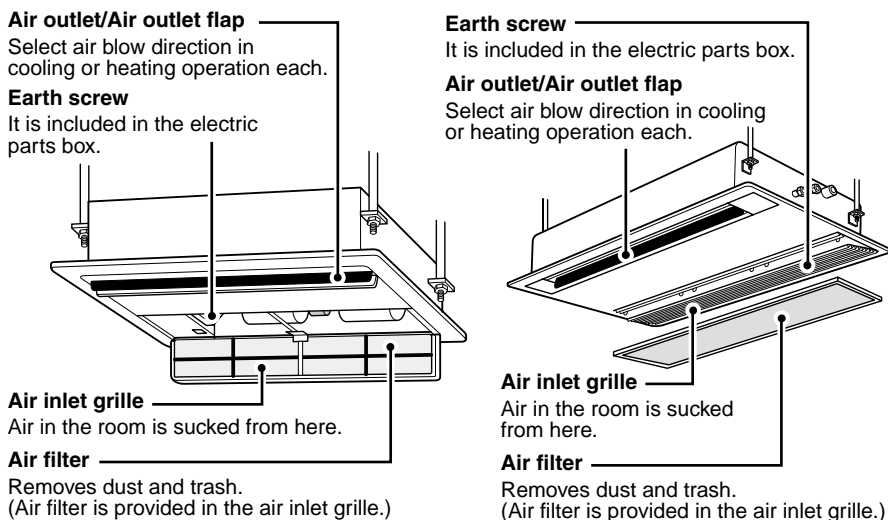


#### [2-way Air Discharge Cassette Type]



#### [1-way Air Discharge Cassette Type]

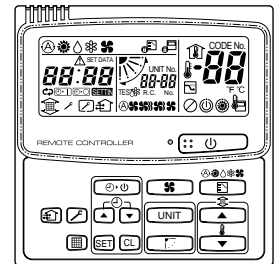
**MMD-AP0071YH to AP0121YH      MMD-AP0151SH to AP0241SH**



## Sold Separately Parts

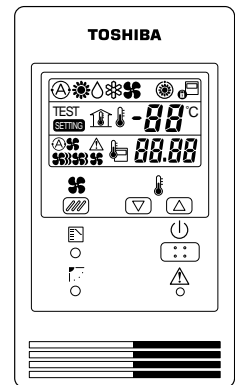
Wired remote controller

RBC-AMT21E



Simple wired remote controller

RBC-AS21E

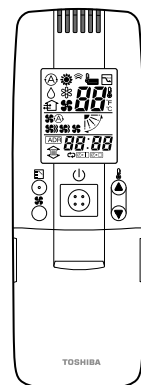


Wireless remote controller kit

RBC-AX22U(W)-E

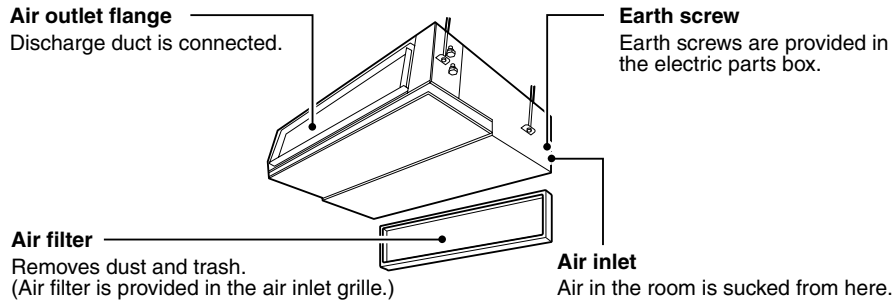
RBC-AX21CE

TCB-AX21E

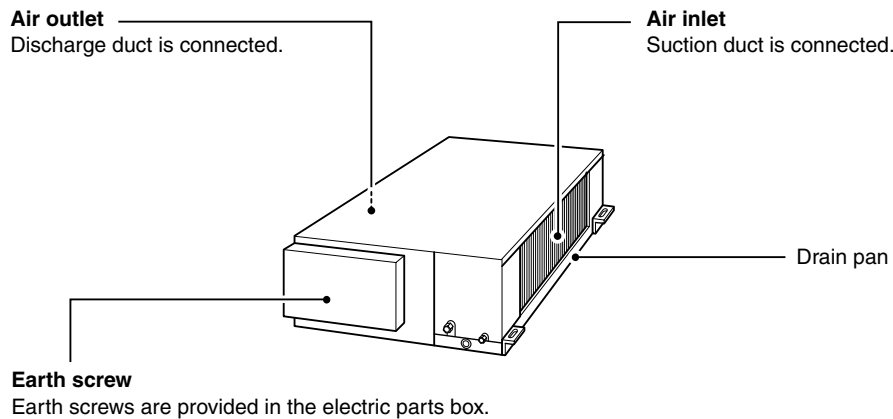


# Outdoor Unit / OWNER'S MANUAL

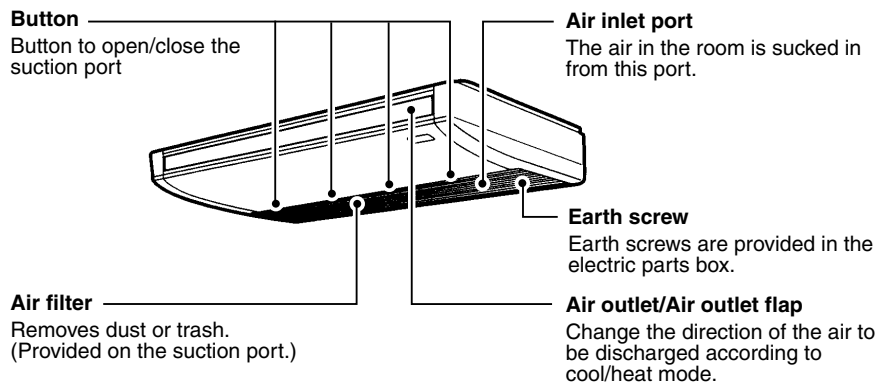
## [Concealed Duct Type]



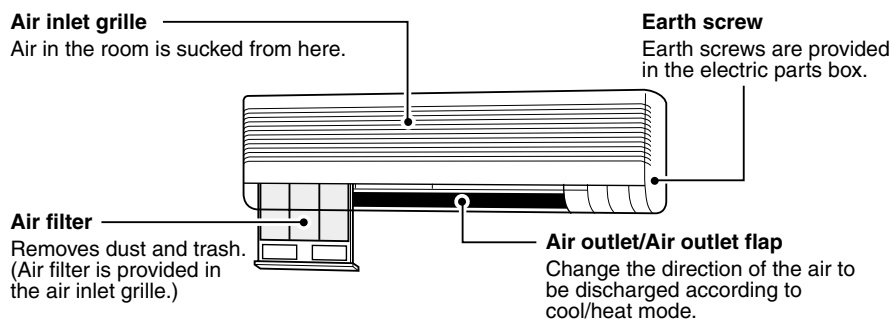
## [Concealed Duct, High Static Pressure Type]



## [Under Ceiling Type]

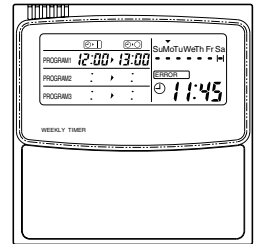


## [High Wall Type]



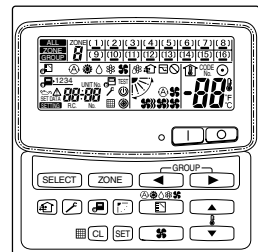
Weekly timer

RBC-EXW21E



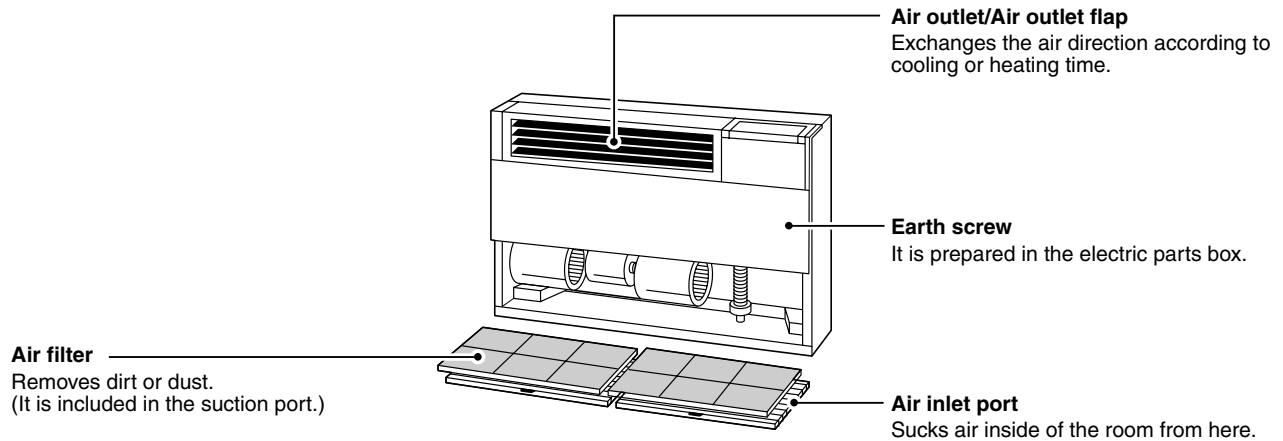
Central remote controller

TCB-SC642TLE

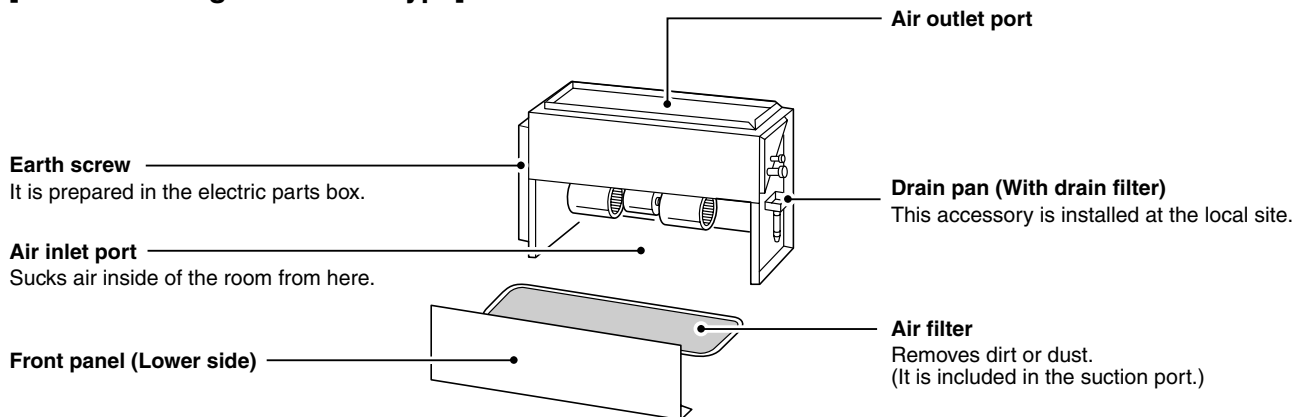


# Outdoor Unit / OWNER'S MANUAL

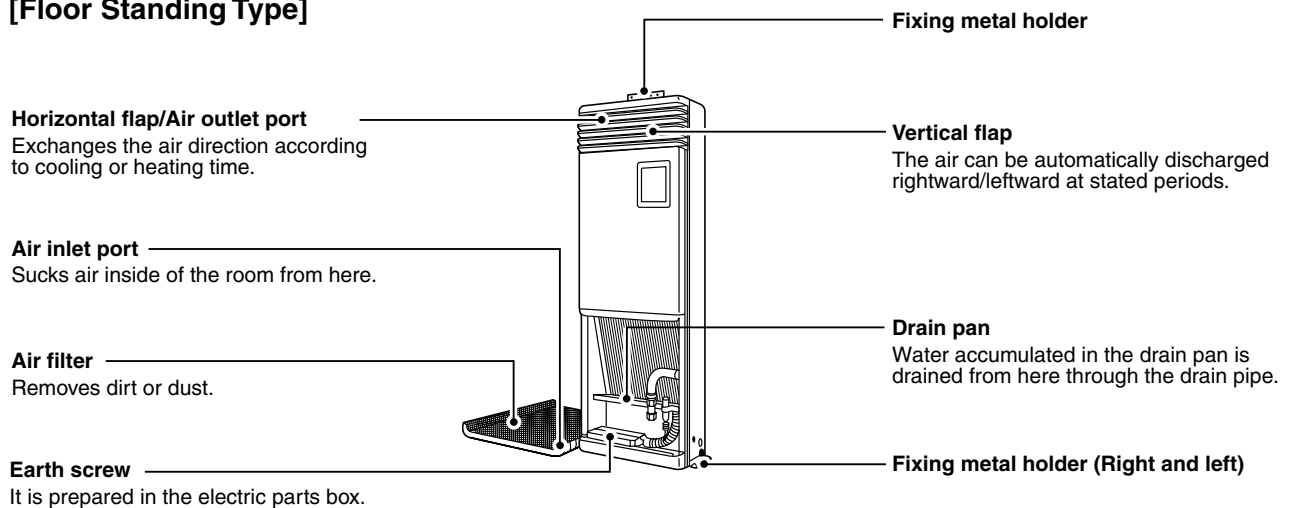
## [Floor Standing Cabinet Type]



## [Floor Standing Concealed Type]



## [Floor Standing Type]



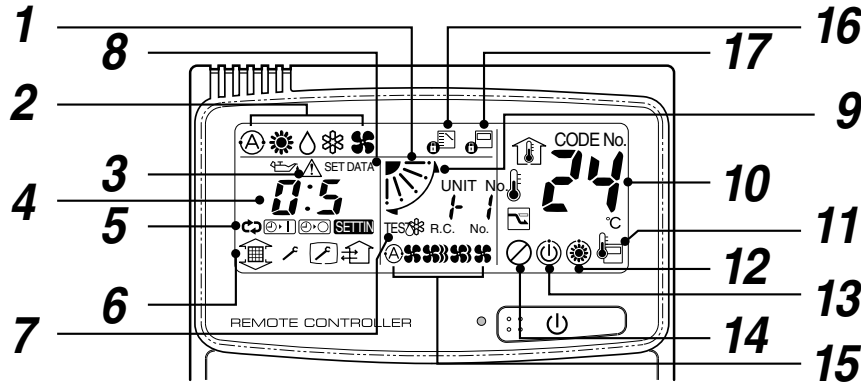
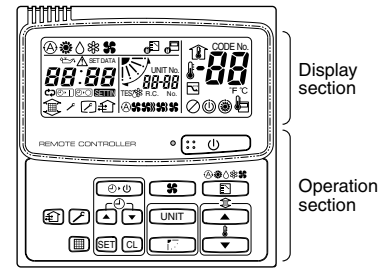


## PARTS NAME OF REMOTE CONTROLLER

### Display section

In the display example, all indicators are displayed for the explanation.  
In reality only, the selected contents are indicated.

- When turning on the leak breaker at the first time, [SET DATA] flashes on the display part of the remote controller. While this display is flashing, the model is being automatically confirmed. Accordingly, wait for a while after [SET DATA] display has disappeared, and then use the remote controller.



#### 1 SET DATA display

Displayed during setup of the timer.

#### 2 Operation mode select display

The selected operation mode is displayed.

#### 3 CHECK display

Displayed while the protective device works or a trouble occurs.

#### 4 Timer time display

Time of the timer is displayed.  
(When a trouble occurs, the check code is displayed.)

#### 5 Timer SETIN setup display

When pushing the Timer SETIN button, the display of the timer is selected in order of [OFF] [ON] → [OFF] repeat OFF timer → [ON] → No display.

#### 6 Filter display

If "FILTER" is displayed, clean the air filter.

#### 7 TEST run display

Displayed during a test run.

#### 8 Flap position display (for 4-Way Air Discharge Cassette Type and Under Ceiling Type model only)

Displays flap position.

#### 9 SWING display

Displayed during up/down movement of the flap.

#### 10 Set up temperature display

The selected set up temp. is displayed.

#### 11 Remote controller sensor display

Displayed while the sensor of the remote controller is used.

#### 12 PRE-HEAT display

Displayed when the heating operation starts or defrost operation is carried out.  
While this indication is displayed, the indoor fan stops or the mode enters in LOW.

#### 13 Operation ready display

Displayed when cooling or heating operation is impossible because the outdoor temperature goes out of the operable range.

#### 14 No function display

Displayed if there is no function even if the button is pushed.

#### 15 Air volume select display

The selected air volume mode is displayed.

(AUTO) (HIGH) (LOW)  
(MED.)

In the Concealed Duct High Static Pressure type models, [HIGH] only is displayed for the air speed.

#### 16 Mode select control display

Displayed when pushing "Operation mode select" button while the operation mode is fixed to heating or cooling by the system manager of the air conditioner.

#### 17 Central control display

Displayed when using the remote controller together with the central control remote controller, etc.


If Remote controller is prohibited at the centralcontrol side, flashes when operating buttons and the change is not accepted.

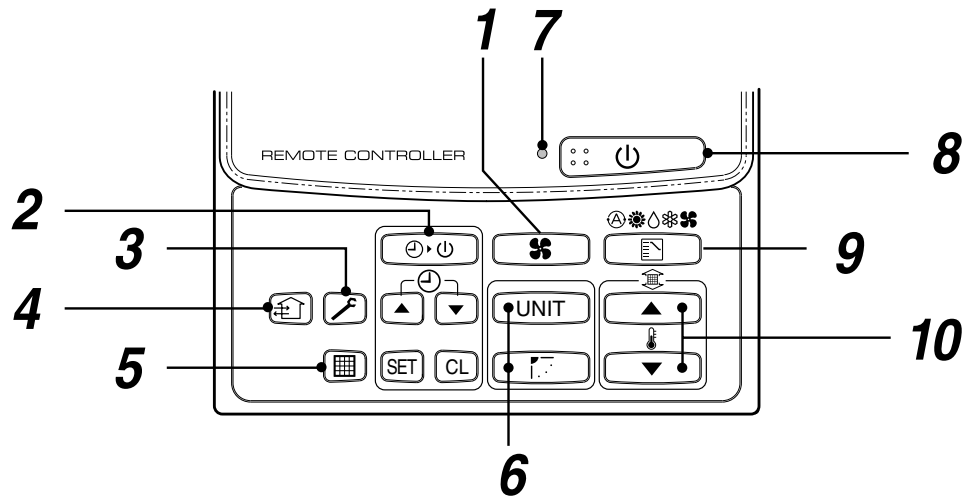
(The contents available to be set up on the remote controller differ according to the central control mode. For details, refer to Owner's Manual of the central control remote controller.)

## Operation section

Push each button to select a desired operation.

This remote controller can operate the maximum 8 indoor units.

- The details of the operation needs to be set up once, afterward, the air conditioner can be used by pushing  button only.



### 1 Air volume select button

Selects the desired air volume mode.  
The Concealed Duct High Static Pressure type models cannot be operated.

### 2 Timer set button


TIMER SET button is used when the timer is set up.

### 3 Check button

The CHECK button is used for the check operation. During normal operation, do not use this button.

### 4 Fan button

FAN button is used when a fan which is sold on the market or etc. is connected.

- If  is displayed on the remote controller when pushing the FAN button, a fan is not connected.


### 5 Filter reset button

Resets (Erases) "FILTER  display.

### 6 Wind direction and Swing

 :

If the multiple indoor units are operated by only one remote controller, select the units when the air direction is adjusted.

 :

Set up the auto swing and angle of the flap.

- This function is not provided to Concealed Duct Standard Type, High Static Pressure Type, Floor standing Cabinet Type, or Floor Standing Concealed Type.

### 7 Operation lamp

Lamp is lit during the operation. Lamp is off when stopped.

Although it flashes when operating the protection device or abnormal time.

### 8 button

When the button is pushed, the operation starts, and it stops by pushing the button again.

When the operation has stopped, the operation lamp and all the displays disappear.



### 9 Operation select button

Selects desired operation mode.

### 10 Set up temperature button

Adjusts the room temperature.

Set the desired set temperature by pushing


 or .

### Remote controller sensor

Usually the TEMP. sensor of the indoor unit senses the temperature. The temperature on the surrounding of the remote controller can also be sensed. For details, contact the dealer from which you have purchased the air conditioner.

- In case that one remote controller controls the multiple indoor units, the setup operation is unavailable in group control.

## CORRECT USAGE

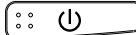
When you use the air conditioner for the first time or when you change the SET DATA value, follow the procedure below. From the next time, the operation displayed on the remote controller will start by pushing the  button only.

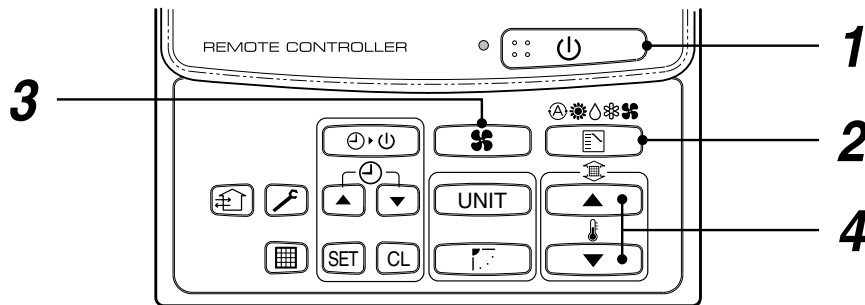
### Preparation

**Turn on the main power switch and/or the leakage breaker.**

- When the power supply is turned on, a partition line is displayed on the display part of the remote controller.
- \* After the power supply is turned on, the remote controller does not accept an operation for approx. 1 minute, but it is not a failure.

### REQUIREMENT

- While using the air conditioner, operate it only with  button without turning off the main power switch and the leak breaker.
- Do not turn off the leak breaker while the air conditioner is used.
- Turn on the leak breaker 12 hours or more before start of operation after the air conditioner has stopped for a long time.



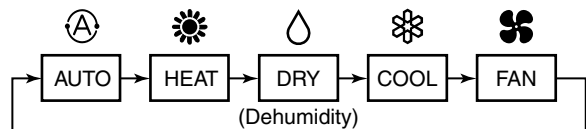
#### 1 Push button.

The operation lamp goes on, and the operation starts.

#### 2 Select an operation mode with the button.


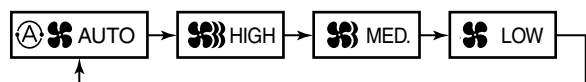
One push of the button, and the display changes in the order shown on the right.

- “DRY” function is not provided to Concealed Duct High Static Pressure Type.



#### 3 Select air volume with button.

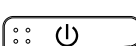
One push of the button, and the display changes in the order shown on the right.

- When air volume is “AUTO 


```

    graph LR
      AUTO((A AUTO)) --> HIGH((HIGH))
      HIGH --> MED((MED.))
      MED --> LOW((LOW))
      LOW --> AUTO
  
```

#### 4 Determine the set up temperature by pushing the “TEMP. Stop

**Push  button.**

The operation lamp goes off, and the operation stops.

## REQUIREMENT

### [In Cooling operation]

- The operation starts after approx. 1 minute.

### [In Heating operation]

- In heating operation, the fan operation may continue for approx. 30 seconds after the air conditioner has stopped.
- The indoor fan continues preheat operation for 3 to 5 minutes under stop condition, and then blows out the hot air.  
(☀ display on the remote controller display part goes on.)
- When temperature of the room has reached the setup temperature and the outdoor unit stops, the air speed becomes super low and the air volume extremely is lessened.
- In the defrost mode, the fan stops so that cool air is not discharged and PRE-DEF ☀ is displayed.

### [In Automatic operation]

- Using the difference between the setup temperature and the room temperature, the heating or cooling operation is automatically performed.

## ADJUSTMENT OF WIND DIRECTION

**To increase the cooling or heating effect, be sure to use the discharge flap in the different directions in cooling or heating operation.**

As the characteristics of the air, the cold air accumulates at lower side and hot air at upper side, respectively.

## CAUTION

### **Set the discharge flap horizontally in cooling operation.**

If cooling operation is performed with downward discharge, the surface of the discharge port or louver will be wet with dew, and dewdrop may fall down.

## REQUIREMENT

- If heating operation is performed with horizontal discharge, unevenness of temperature may increase in the room.

### **4-way Air Discharge Cassette Type**

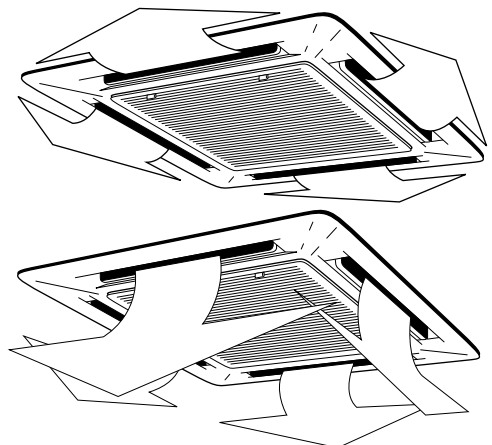
- While the air conditioner stops, the discharge flap automatically directs downward.
- While the air conditioner is in ready status for heating, the discharge flap directs upward.  
The swinging operation starts after heating ready status has been cleared, but "SWING ↶" is displayed on the remote controller even if the status is ready to heating.

### [In Cooling operation]


Use the discharge flap with horizontal set point.

### [In Heating operation]

Use the discharge flap with downward set point.



## How to set up the air direction

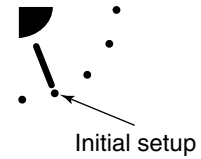
Push  button.

**1** Every pushing the button, the air direction changes.

### In Heating operation

Set the air outlet flap downward.

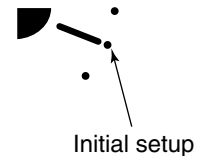
If directing it upward, the hot air may not come to the foot.





### In Cooling / Dry operation


Set the air outlet flap upward.

If directing it downward, the dew may fall on near the air discharge port or it drips.

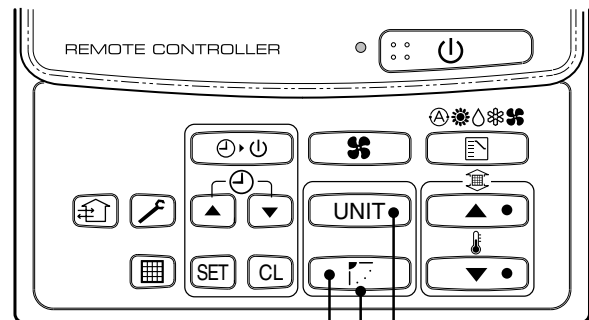


## How to start swinging

**2** Push  button.  
Set direction of the air outlet flap to the lowest position and then push  button again.


- [SWING ] is displayed and the air direction automatically changes upward/downward.

In case when one remote controller controls the multiple indoor units, each indoor unit can be selected and its air direction can be set up.





## How to stop swinging

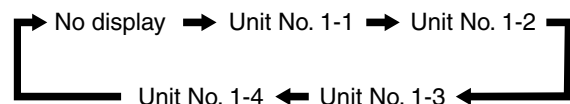
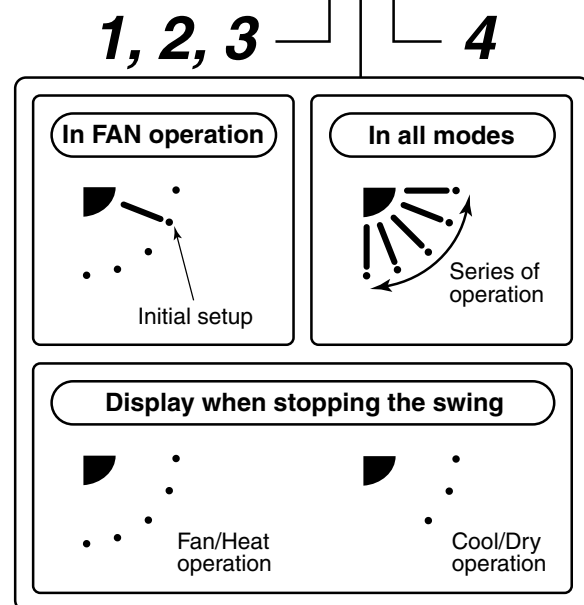
**3** Push  button again during swinging of the air outlet flap.

- The air outlet flap can be stopped at the desired position. After then the air direction can be again set up from the uppermost position by pushing  button.

\* While the air outlet flap is set downward in cooling/drying operation, it does not stop. If stopping the air outlet flap which directs downward during swinging, it stops after moving to the 3rd position from the top position.

**4** 

- To set up the air direction individually, push  button to display each indoor unit No. in a group control. Then set up the air direction to a displayed indoor unit.
- If there is no display, all the indoor units can be operated collectively.
- Every pushing  button, the display exchanges as shown in the figure.



# Outdoor Unit / OWNER'S MANUAL

According to the shape or arrangement of the room, the cold air and hot air can be discharged for two directions or three directions. For details, contact the dealer.

## INFORMATION

- If cooling operation is performed with downward discharge, dew may fall on surface of the cabinet or the horizontal flap resulted in dripping.
- If heating operation is performed with horizontal discharge, unevenness of temperature may increase in the room.
- Do not move the horizontal flap directly with hands; otherwise a trouble is caused. Select direction of the horizontal flap using flap operation switch on the remote controller. The horizontal flap does not stop immediately even if the switch is pushed. Adjusting the stop position, push the switch.

### 2-way Air Discharge Cassette Type

#### [In Cooling operation]


Use the air outlet flap with horizontal set point.

#### [In Heating operation]

Use the air outlet flap with downward set point.

### Setup of air direction and swinging

#### 1 Push button during operation.



- [SWING  ] is displayed and the air direction automatically changes upward/downward.

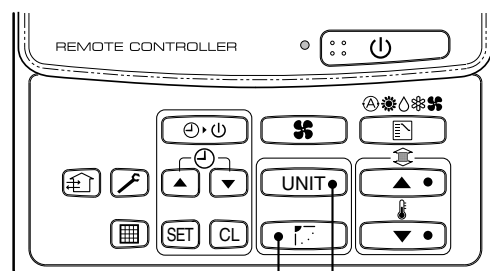
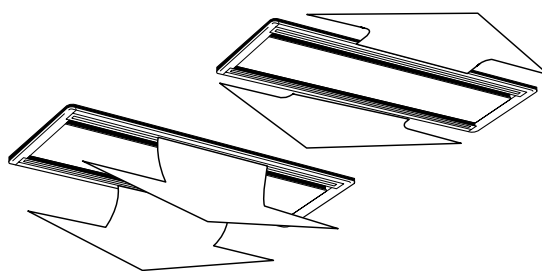
In case when one remote controller controls the multiple indoor units, each indoor unit can be selected and its air direction can be set up.

#### 2 Push button again during swinging of the air outlet flapp.

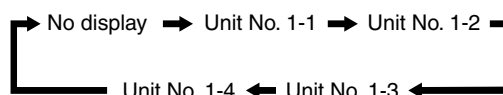
- The air outlet flap can be stopped at the desired position.

#### 3 UNIT

- To set up the air direction individually, push  button to display each indoor unit No. in a group control. Then set up the air direction to a displayed indoor unit.
- If there is no display, all the indoor units can be operated collectively.
- Every pushing  button, the display exchanges as shown in the figure.



1, 2 3



### 1-way Air Discharge Cassette Type

#### Adjustment of air direction upward/downward

##### [In Cooling operation]

In cooling operation, use the air outlet flap with horizontal set point so that the cold air diffuses in whole room.

##### [In Heating operation]

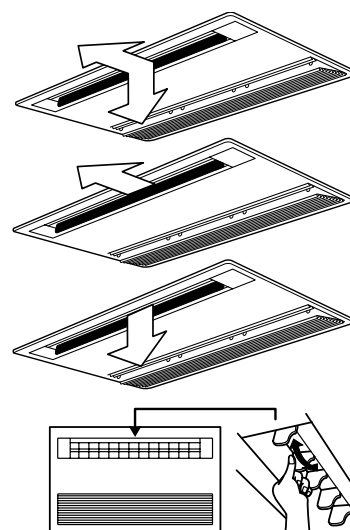
In heating operation, use the air outlet flap with downward set point so that the hot air blows at the foot.

#### Adjustment of air direction rightward/leftward

To change the discharge direction to right or left side, set the vertical grille inside of the air outlet flap to the desired direction.

### Setup of air direction and swinging

Refer to description of "2-way Air Discharge Cassette Type".



## Under Ceiling Type

- While the air conditioner stops, the horizontal flap (Up/Down air direction adjustment plate) automatically directs upward.
- While the air conditioner is in ready status for heating, the horizontal flap (Up/Down air direction adjustment plate) directs upward. The swinging operation starts after heating ready status has been cleared, but “SWING ↷” is displayed on the remote controller even if the status is ready to heating.

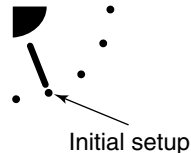
### How to set up the air direction

Push  button during operation.

**1** Every pushing the button, the air direction changes.

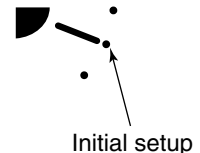
#### In Heating operation

Set the horizontal flap (Up/Down air direction adjustment plate) downward. If directing it upward, the hot air may not come to the foot come to the foot.



#### In Cooling / Dry operation

Set the horizontal flap (Up/Down air direction adjustment plate) upward. If directing it downward, the dew may fall on near the air outlet port or it drips.



### How to start swinging

**2** Push  button.


Set direction of the horizontal flap (Up/Down air direction adjustment plate) to the lowest position and then push  button again.

- [SWING ↷] is displayed and the air direction automatically changes upward/downward.




In case when one remote controller controls the multiple indoor units, each indoor unit can be selected and its air direction can be set up.

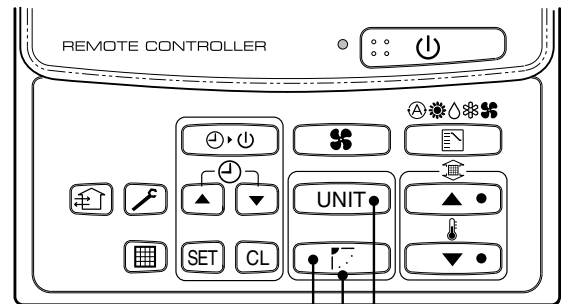
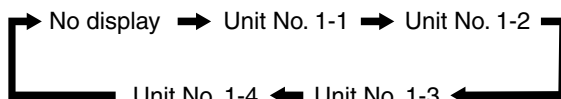
### How to stop swinging

**3** Push  button again during swinging of the horizontal flap.

- The horizontal flap can be stopped at the desired position. After then the air direction can be again set up from the uppermost position by pushing  button.
- \* While the horizontal flap is set downward in cooling/drying operation, it does not stop. If stopping the horizontal flap which directs downward during swinging, it stops after moving to the 3rd position from the top position.

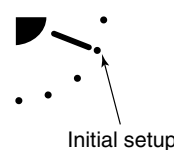
**4**

-  **UNIT**
- To set up the air direction individually, push  button to display each indoor unit No. in a group control. Then set up the air direction to a displayed indoor unit.
  - If there is no display, all the indoor units can be operated collectively.
  - Every pushing  button, the display exchanges as shown in the figure.



**1, 2, 3**      **4**

#### In FAN operation



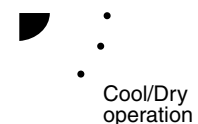
#### In all modes



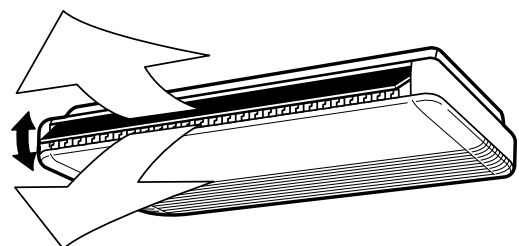
#### Display when stopping the swing



Fan/Heat operation

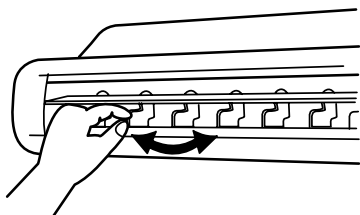


Cool/Dry operation



## Right/Left air direction adjustment

To change the air outlet direction to right or left side, set the vertical flap inside of the horizontal flap to the desired direction.



### INFORMATION

- If cooling operation is performed with downward discharge, dew may fall on surface of the cabinet or the horizontal flap resulted in dripping.
- If heating operation is performed with horizontal discharge, unevenness of temperature may increase in the room.

## High Wall Type

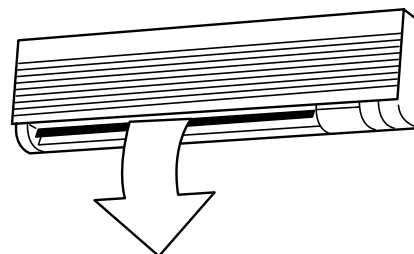
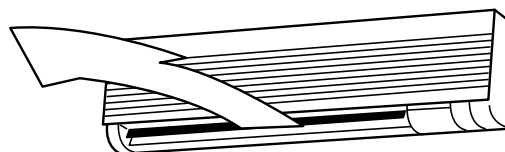
### Adjustment of air direction upward/downward

#### [In Cooling operation]


In cooling operation, use the horizontal flap with horizontal set point so that the cold air diffuses in whole room.

#### [In Heating operation]

In heating operation, use the horizontal flap with downward set point so that the hot air blows at the foot.

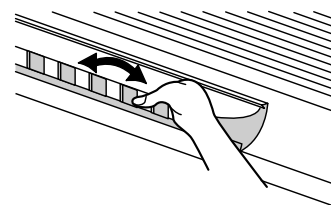


### REQUIREMENT

- If cooling operation is performed with downward air outlet, dew may fall on surface of the cabinet or the horizontal flap resulted in dripping.
- If heating operation is performed with horizontal air outlet, unevenness of temperature may increase in the room.
- Do not move the horizontal flap directly with hands; otherwise a trouble is caused. Select direction of the horizontal flap using  switch on the remote controller. The horizontal flap does not stop immediately even if the switch is pushed. Adjusting the stop position, push the switch.

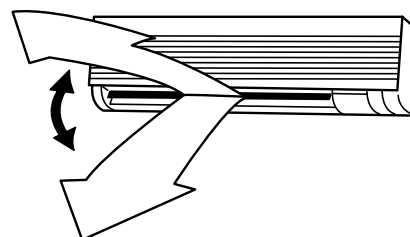
### Adjustment of air direction rightward/leftward

To change the air outlet direction to right or left side, set the vertical flap inside of the horizontal flap to the desired direction.



### Setup of air direction and swinging

Refer to description of "2-way Air Discharge Cassette Type".

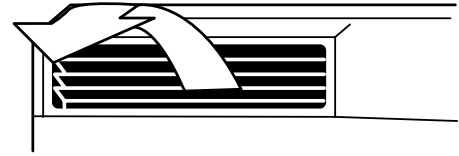




## Floor Standing Cabinet Type

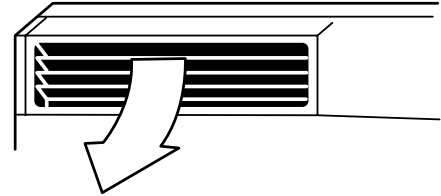
### [In Cooling operation]

In cooling operation, use the air outlet flap with horizontal set point so that the cold air diffuses in whole room.



### [In Heating operation]

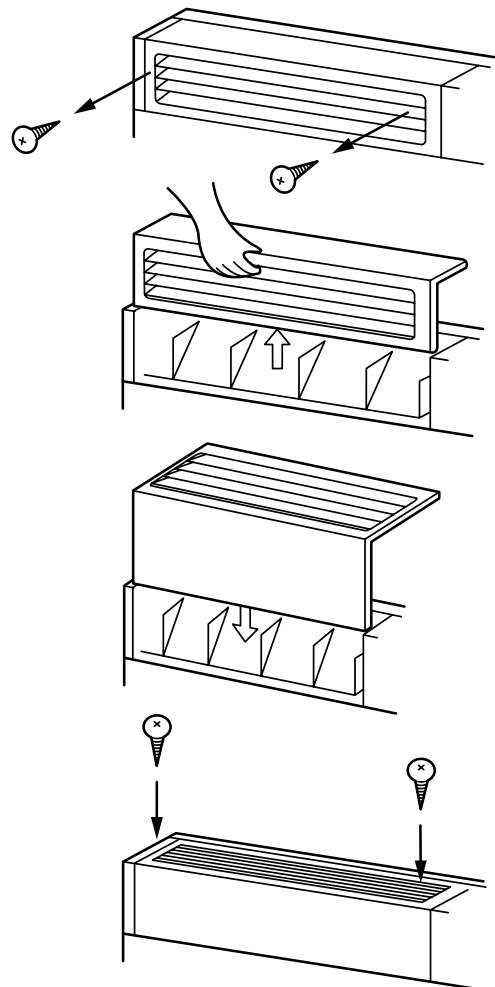
In heating operation, use the air outlet flap with downward set point so that the hot air blows at the foot.



### How to change the air outlet port

Change the air outlet port in the following procedure.

- 1** Take off two fixing screws of the air outlet port.  
(The fixing screws are reused.)
- 2** Insert the hand into the air outlet port and push up it a little, and then remove the air outlet port from the claw hook at rear side.
- 3** Lift up the air outlet port upward and remove it.
- 4** Reverse the air outlet port and attach it to the main unit.  
Pay attention so that four claw hooks (two at rear and lower sides each) are hooked at mounting position.
- 5** Be sure to tighten the air outlet port with the removed fixing screws so that the air outlet port does not come off.



## Floor Standing Type

### Adjustment of air direction upward/downward

#### [In Cooling operation]

In cooling operation, move the flap with hands and use it with horizontal air outlet point so that the cold air diffuses in whole room.

#### [In Heating operation]

In heating operation, move the flap with hands and use the horizontal flap with downward set point so that the hot air blows at the foot.

### Adjustment of air direction rightward/leftward


#### [In case of using unsymmetrical air directions]

Lift up the vertical flap lightly, direct it toward the desired direction, and lower it.

In this case, do not use the Swing function.

#### [In case of automatic swing]

#### 1 Push button during operation.



- [SWING ] is displayed and the air direction automatically changes rightward/leftward.

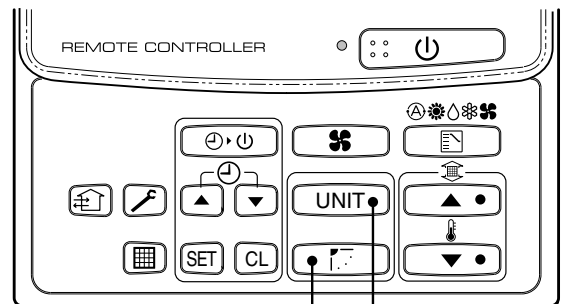
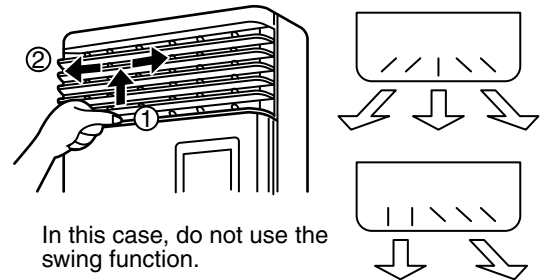
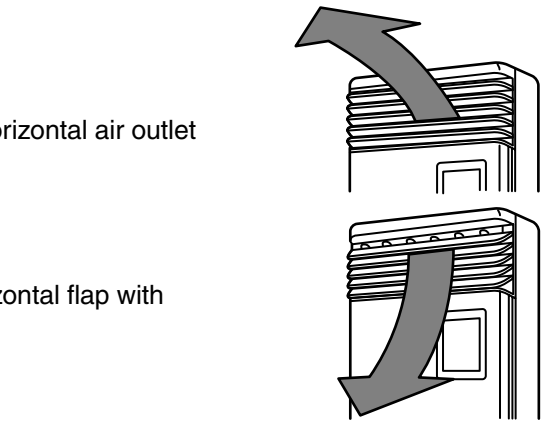
In case when one remote controller controls the multiple indoor units, each indoor unit can be selected and its air direction can be set up.

#### 2 Push button again during swinging of the vertical flap.

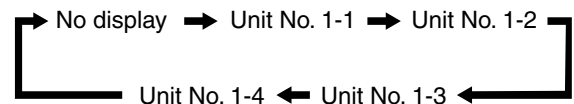
- The vertical flap can be stopped at the desired position.

#### 3 Swing button



- To set up the air direction individually, push  button to display each indoor unit No. in a group control. Then set up the air direction to a displayed indoor unit.
- If there is no display, all the indoor units can be operated collectively.
- Every pushing  button, the display exchanges as shown in the figure.



1, 2 3



## INFORMATION

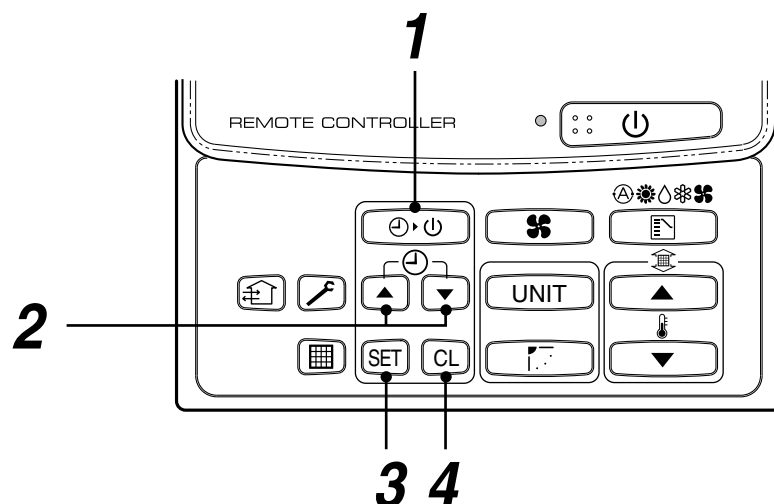
- If cooling operation is performed with downward air outlet, dew may fall on surface of the cabinet or the horizontal flap resulted in dripping.
- If heating operation is performed with horizontal air outlet, unevenness of temperature may increase in the room.
- Do not move the flap directly with hands during swing operation; otherwise a trouble is caused. The vertical flap does not stop immediately even if the  button is pushed. Adjusting the stop position, push the  button.

## TIMER OPERATION

A type of timer operation can be selected from the following three types.

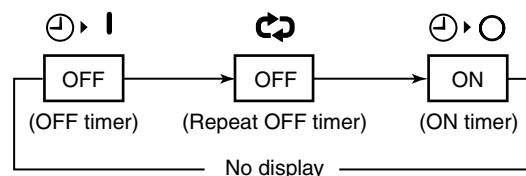
- OFF timer : The operation stops when the time of timer has reached the set time.
- Repeat OFF timer : Every time, the operation stops after the set time has passed.
- ON timer : The operation starts when the time of timer has reached the set time.

### Timer operation



#### 1 Push TIMER SET button.

- The timer display (type) changes for every push of the button.
- SET DATA and display flashes.



#### 2 Push to select "SET TIME".

For every push of button, the set time increases in the unit of 0.5 hr (30 minutes).

The maximum set time is 72.0 hr.

For every push of button, the set time decreases in the unit of 0.5 hr (30 minutes).

The minimum set time is 0.5 hr.

#### 3 Push SET button.

- SET DATA display disappears and display goes on.

(When ON timer is activated, time is displayed, and after time of the timer has been up, displays other than ON disappear.)

### Cancel of timer operation

#### 4 Push CL button.

- TIMER display disappears.

### NOTICE

- When the operation stops after the timer reached the preset time, the Repeat OFF timer resumes the operation by pushing button and stops the operation after the time of the timer has reached the set time.

## INSTALLATION

### Installation location

#### WARNING

- **Select a location for installation that will be able to safely bear the weight of the unit.**  
If the installation location is not strong enough to support the unit and the unit falls, injury could result.

#### CAUTION

- **Do not install the unit in a location where combustible gases could conceivably leak.**  
Leaking gases that accumulate in the vicinity of the unit could be ignited by the unit.

#### REQUIREMENT

- A location that permits level installation of the unit
- A location that provides enough space to service the unit safely
- A location where water draining from the unit will not pose a problem

#### **Avoid the following types of locations :**

- Locations where salt is present in large amounts (seaside areas), or where sulfuric gases are present in large amounts (hot springs areas)  
(If the unit is to be used in such areas, special maintenance is necessary.)
- Locations that generate oils (including machine oils), steam, oily smoke, or corrosive gases
- Locations where organic solvents are used
- Locations in the vicinity of equipment that generates high frequency signals
- Locations where the outdoor unit will blow in the direction of a neighbor's window
- Locations where the noise of the outdoor unit will pose a problem
- Locations with poor air circulation

### Electric wiring

#### WARNING

#### **Check that earthing practice is correctly performed.**

Grounding is necessary. If earthing practice is incomplete, an electric shock may be caused.

#### CAUTION

#### **Check the circuit breaker is fitted.**

Attaching the earth leakage breaker is necessary. Otherwise, an electric shock may be caused.

#### **Make sure that correct capacity Fuses are used.**

Using wire or copper wire may cause a fire or trouble.

For the power supply, use a circuit with rated voltage exclusive for air conditioner.

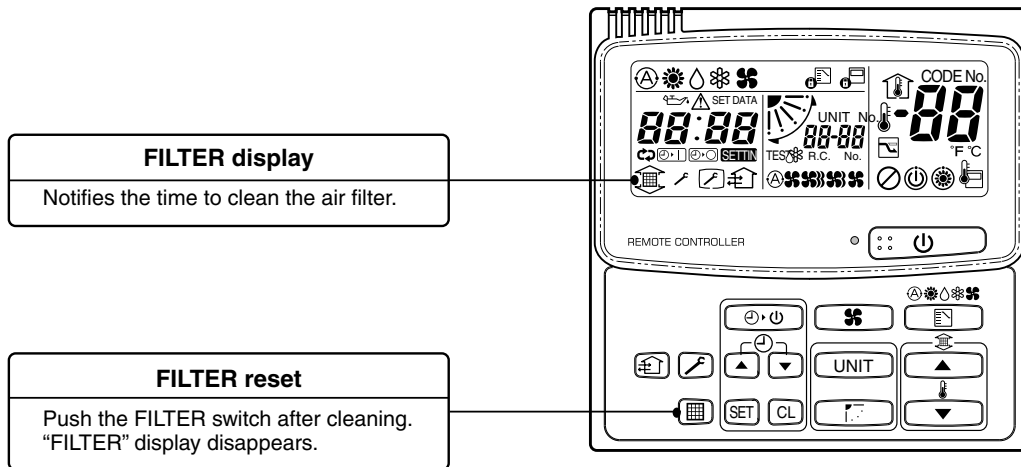
#### **To disconnect the appliance from the main power supply.**

This appliance must be connected to the main power supply by means of circuit breaker or a switch with a contact separation of at least 3mm.

## MAINTENANCE

### Cleaning of air filter

- When [FILTER] is displayed on the remote controller, maintain the air filter.
- Clogging of air filter decreases cooling/heating effect.



### WARNING

**Be sure to turn off the main power switch prior to the maintenance.**

- **Please do not intend to do the daily maintenance and/or Air Filter cleaning by yourself.**

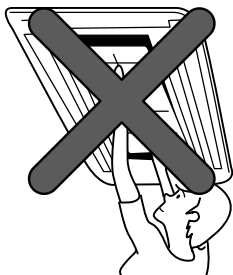
Cleaning of the air filter and other parts of the air filter involves dangerous work in high places, so be sure to have a service person do it. Do not attempt it yourself.

### <Daily maintenance>

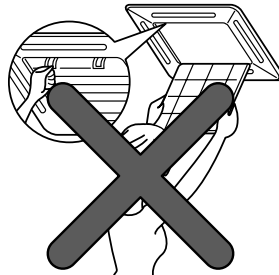
- For daily maintenance including Air Filter cleaning, make sure to ask the qualified service person particularly following models;

4-way Air Discharge Cassette Type  
2-way Air Discharge Cassette Type  
1-way Air Discharge Cassette Type

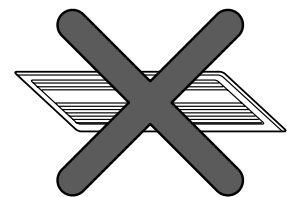
Concealed Duct Type  
Concealed Duct, High Static Pressure Type  
Under Ceiling Type



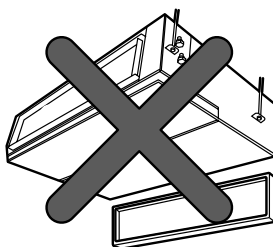
**2-way Air Discharge Cassette Type**



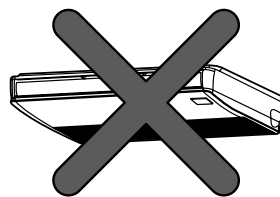
**4-way Air Discharge Cassette Type**



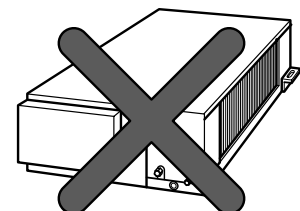
**1-way Air Discharge Cassette Type**



**Concealed Duct Type**



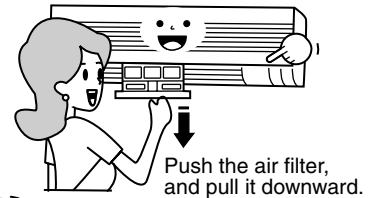
**Under Ceiling Type**



**Concealed Duct, High Static Pressure Type**

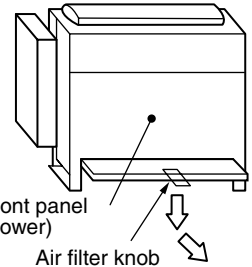
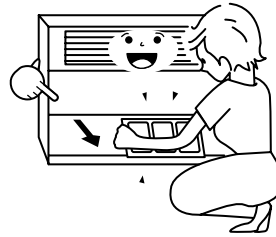
## High Wall Type

- Push the projection at the center of air filter. Clip is out.
- Undo the clip of air filter, pull the air filter downward while pushing it toward the main unit side.



## Floor Standing Cabinet Type

- Push down the upper part of the suction port a little, and then pull toward you to remove it.
- Take out the air filter inside of the suction port.



## Floor Standing Concealed Type

- Push down hook of the air filter on the front panel (Lower side).
- Pull the air filter toward you to remove it.



## Floor Standing Type

### Removal / Attachment of air filter

- Pull the air filter toward you.
- To attach the air filter, insert it into the main body and push in it.

## NOTE

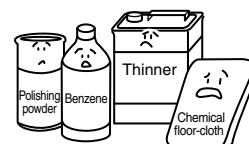
- For cleaning of air filter, use a cleaner or brush clean. If stain is heavy, it is effective to wash the air filter in tepid water mixed with neutral detergent.
- After washing, rinse it well, and dry it in the shade.
- Install again the air filter which has been cleaned.



## Cleaning of main unit / remote controller

### CAUTION

- Wipe them with soft and dry cloth.
- A cloth dampened with cold water may be used on the indoor unit if it is very dirty.
- Never use a damp cloth on the main unit and remote controller.
- Do not use a chemically-treated duster for wiping or leave such materials on the unit for long. It may damage or fade the surface of the unit.
- Do not use benzene, thinner, polishing powder, or similar solvents for cleaning. These may cause the plastic surface to crack or deform.



Do not use.

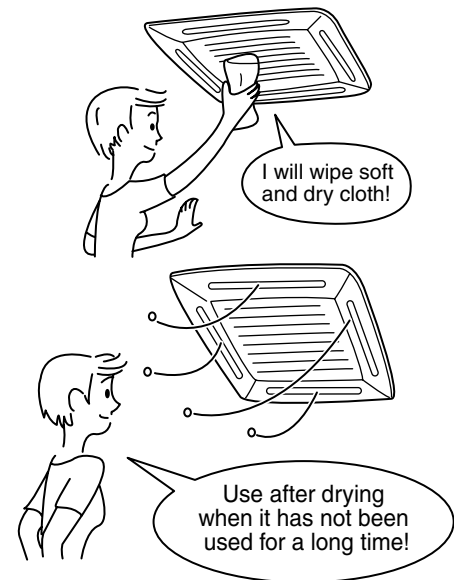
# Outdoor Unit / OWNER'S MANUAL

## If you do not plan to use the unit for more than 1 month

- (1) Operate the fan for 3 to 4 hours to dry inside the unit
  - Operate "FAN" mode.
- (2) Stop the air conditioner and turn off the main power switch or the circuit breaker.

## Checks before operation

- (1) Check that the air filters are installed.
- (2) Check that the air outlet or inlet is not blocked.
- (3) Turn on the main power switch or the circuit breaker for the main power supply to the air conditioner.



## NOTE

For Air conditioning system which is operated regularly, cleaning and maintenance of the indoor/outdoor units are strongly recommended.

As a general rule, if an indoor unit is operated for about 8 hours daily, the indoor/outdoor units will need to be cleaned at least once every 3-MONTH. This cleaning and maintenance shall be carried out by a qualified person.

Failure to clean the indoor/outdoor units regularly will result in poor performance, icing, water leaking and even compressor failure.

## HINTS FOR ECONOMICAL OPERATION

### Maintain room temperature at comfortable level

#### Clean air filters

The clogged air filter impairs the performance of the air conditioner.

#### Never open doors and windows more often than necessary

To keep cool or warm air in the room, never open doors and windows more often than necessary.

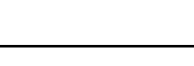
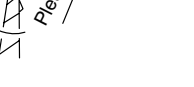
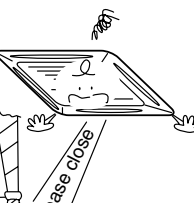
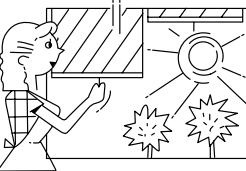
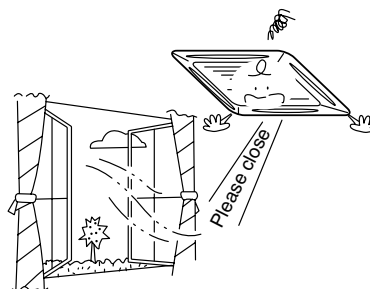
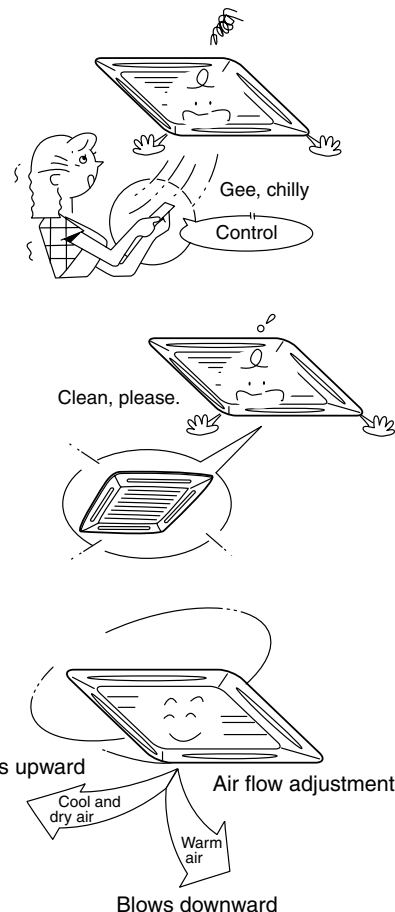
#### Window curtains

In cooling, close the curtains to avoid direct sunlight.

In heating, close the curtains to keep the heat in.

#### Get uniform circulation of room air

Adjust the air flow direction for the even circulation of room air.



## AIR CONDITIONER OPERATIONS AND PERFORMANCE

### Check before operation

- Check whether earth wire is disconnected or out of place.
- Check that air filter is installed to the indoor unit.

### WARNING

**Turn on the power switch  
12 hours or more before  
starting before operation.**

### Heating capacity

- For heating, a heat pump system which sucks in outside heat air and discharges it into the room is adopted.  
If temperature of the outside air lowers, the heating capacity decreases.
- When temperature of the outside air is low, it is recommended to use other heating equipment together.

### Defrost operation during heating operation

- If the outdoor unit has some frost during heating operation, the operation mode changes automatically to defrost mode to increase the heating effect (for approx. 2 to 10 minutes).
- During defrost operation, fans of the indoor and the outdoor units stop.

### Protection for 3 minutes

- The outdoor unit does not operate for approx. 3 minutes after air conditioner has been immediately restarted after stop, or power switch has been turned on. This is to protect the system.

### Main power failure

- If a power failure occurred during the operation, all operations stop.
- When restarting the operation, push ON/OFF button again.

### Fan rotation of stopped unit

- While other indoor units operate, the fan on indoor units on "stand-by" rotates to protect the machine once per approx. 1 hour for several minutes.

### Protective device (High pressure switch)

The high pressure switch stops the air conditioner automatically when excessive load is applied to the air conditioner.

If the protective device works, the operation lamp keeps lit but the operation stops.

When the protective device works, check characters " $\triangle$ " in the remote controller display part flash.  
The protective device may work in the following cases.

- When suction or discharge port of the outdoor unit closed.
- When strong wind blows continuously against discharge port of the outdoor unit.
- When dust or dirt is excessively adhered to air filter of the indoor unit.
- When discharge port of the indoor unit is blocked.

### Cooling/heating operation of Heat Recovery Multi air conditioner

- When the outdoor temperature goes out of the operable range, cooling or heating operation may not be performed in order to protect the equipment. In this case, " $\text{U}$ " goes on.

### Characteristics of heating operation

- Hot air is not out immediately after the operation has started. After 3 to 5 minutes (differs according to room or outside temperature) has passed and the indoor heat exchanger has been warmed up, hot air blows out.
- During operation, the outdoor unit may stop if outside temperature becomes high.
- When other outdoor unit performs heating operation while the fan is operating, the fan operation may be stopped temporarily to prevent blowing of hot air.

### Characteristics of cooling/heating simultaneous operation

- If the outdoor temperature drops during operation, the fan of the outdoor unit may stop.



## Outdoor Unit / OWNER'S MANUAL

### Air conditioner operating conditions

For proper performance, operate the air conditioner under the following temperature conditions:

Cooling operation	Outdoor temperature : $-5^{\circ}\text{C}$ to $43^{\circ}\text{C}$ (Dry-bulb temp.)
	Room temperature : $21^{\circ}\text{C}$ to $32^{\circ}\text{C}$ (Dry-bulb temp.), $15^{\circ}\text{C}$ to $24^{\circ}\text{C}$ (Wet-bulb temp.)
	<b>CAUTION</b> Room relative humidity – less than 80 %. If the air conditioner operates in excess of this figure, the surface of the air conditioner may cause dewing.
Heating operation	Outdoor temperature : $-15^{\circ}\text{C}$ to $21^{\circ}\text{C}$ (Dry-bulb temp.), $-15^{\circ}\text{C}$ to $15.5^{\circ}\text{C}$ (Wet-bulb temp.)
	Room temperature : $15^{\circ}\text{C}$ to $28^{\circ}\text{C}$ (Dry-bulb temp.)

- If air conditioner is used outside of the above conditions, safety protection may work.
- \* Do not use "Super HRM" for other than personal usage where the ambient temperature may go down below  $-5^{\circ}\text{C}$ . (For example, OA equipment/Electric device/Food/Animals and plants/Art object)

### **CAUTION**

When outdoor temperature goes out of specified range, "❄" or "🔥" mark is indicated on the Wired remote controller display and required operation will stop.

"❄ & 🔥" : When heating operation. "❄" : When cooling operation.

#### Notice :

- This indication is not failure.
- When outdoor temperature goes back to specified range, "❄" or "🔥" disappear and start normal operation.
- Operation stops because concurrent operation can not be kept in the condition of out of specification for Super HRM.  
(Outdoor temp. (DB)  $< -5^{\circ}\text{C}$  : Cooling,  $> 21^{\circ}\text{C}$  : Heating)

## RE-INSTALLATION

### **DANGER**

**Ask the dealer or an installation professional to re-install the air conditioner to a new place or move it to another place and to observe the following items.**

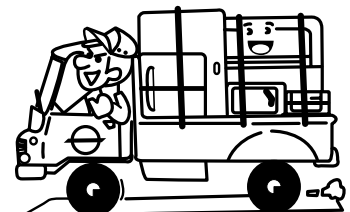
**If the air conditioner is inappropriate installed by yourself, it may cause electric shock or fire.**

#### Do not install the air conditioner in the following places

- Do not install the air conditioner in any place within 1 m from a TV, stereo, or radio set. If the unit is installed in such place, noise transmitted from the air conditioner affects the operation of these appliances.
- Do not install the air conditioner near a high frequency appliance (sewing machine or massager for business use, etc.), otherwise the air conditioner may malfunction.
- Do not install the air conditioner in a humid or oily place, or in a place where steam, soot, or corrosive gas is generated.
- Do not install the air conditioner in a salty place such as seaside area.
- Do not install the air conditioner in a place where a great deal of machine oil is used.
- Do not install the air conditioner in a place where it is usually exposed to strong wind such as in seaside area or on the roof or upper floor of a building.
- Do not install the air conditioner in a place where sulfurous gas generated such as in a spa.
- Do not install the air conditioner in a vessel or mobile crane.


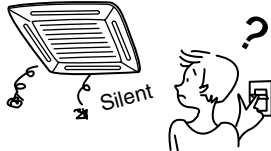
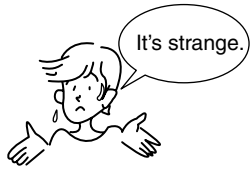
#### Be careful with noise or vibrations

- Do not install the air conditioner in a place where noise by outdoor unit or hot air from its air outlet annoys your neighbors.
- Install the air conditioner on a solid and stable foundation so that it prevents transmission of resonating, operation noise and vibration.
- If one indoor unit is operating, some sound may be audible from other indoor units that are not operating.



## WHEN THE FOLLOWING SYMPTOMS ARE FOUND

**Check the points described below before asking repair servicing.**

Symptom		Cause
<b>It is not a failure.</b>	Outdoor unit <ul style="list-style-type: none"> <li>• White misty cold air or water is out.</li> <li>• Sometimes, noise "Pushu !" is heard.</li> </ul>	<ul style="list-style-type: none"> <li>• Fan of the outdoor unit stops automatically and performs defrost operation.</li> <li>• Solenoid valve works when defrost operation starts or finishes.</li> </ul>
	Indoor unit <ul style="list-style-type: none"> <li>• "Swish" sound is heard sometimes.</li> <li>• Slight "Pishi!" sound is heard.</li> <li>• Discharge air smells.</li> <li>• "Ⓢ" indication is lit.</li> </ul>  <ul style="list-style-type: none"> <li>• Sound or cool air is output from the stand by indoor unit.</li> <li>• When power of the air conditioner is turned on, "Ticktock" sound is heard.</li> </ul>	<ul style="list-style-type: none"> <li>• When the operation has started, during the operation, or immediately after the operation has stopped, a sound such as water flows may be heard, and the operation sound may become larger for 2 or 3 minutes immediately after the operation has started. They are flowing sound of refrigerant or draining sound of dehumidifier.</li> <li>• This is sound generated when heat exchanger, etc. expand and contract slightly due to change of temperature.</li> <li>• Various smell such as one of wall, carpet, clothes, cigarette, or cosmetics adhere to the air conditioner.</li> <li>• Do not the outdoor temperature go out of the specified range?</li> <li>• When the manager of the air conditioner has fixed the operation to COOL or HEAT, and an operation contrary to the setup operation is performed.</li> <li>• When fan operation stopped to prevent discharge of hot air.</li> <li>• Since refrigerant is flowed temporarily to prevent stay of oil or refrigerant in the stand by indoor unit, sound of flowing refrigerant, "Kyururu" or "Shaa" may be heard or white steam when other indoor unit operates in HEAT mode, and cold air in COOL mode may be blow-out.</li> <li>• Sound is generated when the expansion valve operates when power has been turned on.</li> </ul>
<b>Check again.</b>	Operates or stops automatically.	<ul style="list-style-type: none"> <li>• Is the timer "ON" or "OFF"?</li> </ul>
	Does not operate. 	<ul style="list-style-type: none"> <li>• Is it a power failure?</li> <li>• Is the power switch turned off?</li> <li>• Is the power fuse or breaker blown?</li> <li>• Has the protective device operated? (The operation lamp goes on.)</li> <li>• Is the timer "ON"? (The operation lamp goes on.)</li> <li>• Do not the outdoor temperature go out of the specified range?</li> </ul>
	Air is not cooled or warmed sufficiently. 	<ul style="list-style-type: none"> <li>• Is the suction port or discharge port of the outdoor unit obstructed?</li> <li>• Are any door or window open?</li> <li>• Is the air filter clogged with dust?</li> <li>• Is discharge louver of the indoor unit set at appropriate position?</li> <li>• Is air selection set to "LOW" "MED", and is the operation mode set to "FAN"?</li> <li>• Is the setup temp. the appropriate temperature?</li> <li>• Do not the outdoor temperature go out of the specified range?</li> </ul>

When the following symptoms are found, stop the operation immediately, turn off the power switch, and contact the dealer which you have purchased the air conditioner.

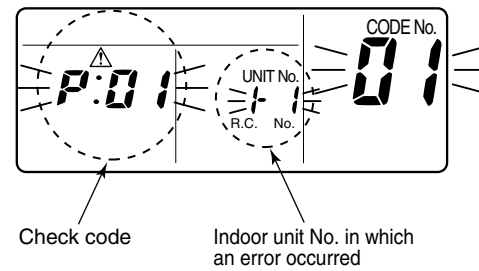
- Activation of switch is unstable.
- The main power fuse often blows out, or circuit breaker is often activated.
- Foreign matters or water entered by mistake.
- When if activation cause of the protective device has been removed, the operation is not performed.
- Other unusual status occurred.

## Confirmation and check

When a trouble occurred in the air conditioner, the check code and the indoor unit No. appear on the display part of the remote controller.

The check code is only displayed during the operation.

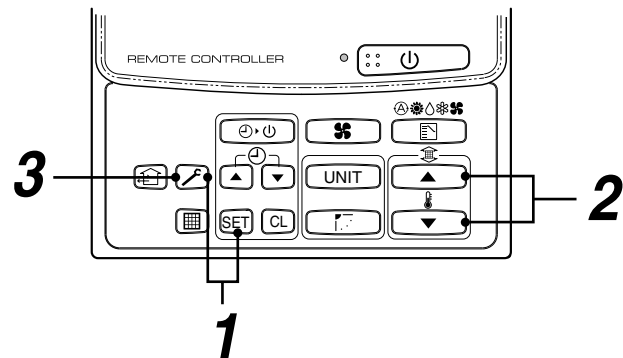
If the display disappears, operate the air conditioner according to the following "Confirmation of error history" for confirmation.



## Confirmation of error history

When a trouble occurred on the air conditioner, the trouble history can be confirmed with the following procedure. (The trouble history is stored in memory up to 4 troubles.)

The history can be confirmed from both operating status and stop status.


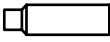

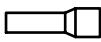
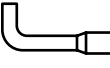



Procedure	Description
1	<p>When pushing <b>SET</b> and <b>CL</b> buttons at the same time for 4 seconds or more, the following display appears.</p> <p>If [Service check] is displayed, the mode enters in the trouble history mode.</p> <ul style="list-style-type: none"> <li>• [01 : Order of trouble history] is displayed in CODE No. window.</li> <li>• [Check code] is displayed in CHECK window.</li> <li>• [Indoor unit address in which an error occurred] is displayed in UNIT No.</li> </ul>
2	<p>Every pushing of [ <b>▲</b> , <b>▼</b> ] button used to set temperature, the trouble history stored in memory is displayed in order.</p> <p>The numbers in CODE No. indicate CODE No. [01] (latest) → [04] (oldest).</p> <p><b>CAUTION</b></p> <p>Do not push <b>CL</b> button because all the trouble history of the indoor unit will be deleted.</p>
3	<p>After confirmation, push <b>CL</b> button to return to the usual display.</p>

1. Check the troubles according to the above procedure.
2. Ask an authorized dealer or qualified service (maintenance) professional to repair or maintain the air conditioner.
3. More details of the service code are explained in Service Manual.

# ACCESSORY PARTS

## □ Accessory parts

Part name	Q'ty			Shape	Use
	MAP0801FT8	MAP1001FT8	MAP1201FT8		
Installation Manual	2	2	2	Volume-1 Volume-2	(Be sure to handover to customers.)
Owner's Manual	1	1	1	—	(Be sure to handover to customers.)
Attached pipe	1	1	—		Suction gas pipe Ø25 to Ø22 special-form connecting pipe (For drawing out forward, downward)
Attached pipe	—	—	1		Suction gas pipe Ø25 to Ø28.6 special-form connecting pipe (For drawing out forward)
Attached pipe	—	—	1		Suction gas pipe Ø25 to Ø28.6 special-form connecting pipe (For drawing out downward)
Attached pipe	1	1	1		Discharge gas pipe Ø15.9 to Ø19.1 special-form connecting pipe (For drawing out forward)
Attached pipe	1	1	1		Discharge gas pipe Ø15.9 to Ø19.1 special-form connecting pipe (For drawing out downward)
Attached pipe	1	1	1		Liquid pipe Ø12.7 connecting pipe (For drawing out forward)

- This air conditioner requires the indoor unit, remote controller, Flow selector unit, and Y-shape branching joint or branching header. Select one according to the capacity.

## SAFETY CAUTION

- Please read this “Safety Cautions” thoroughly before installation to install the air conditioner and flow selector correctly.
- The important contents concerned to the safety are described in the “Safety Cautions”. Be sure to keep them. For Indications and their meanings, see the following description.

### ■ Explanation of indications



#### WARNING

Indicates possibilities that a death or serious injury of personnel is caused by an incorrect handling.



#### CAUTION

Indicates contents that an injury (\*1) or property damage (\*2) only may be caused when an incorrect work has been executed.

\*1 : “Injury” means a hurt, a burn, or an electric shock which does not require hospitalization or a long-term going to the hospital.

\*2 : “Property damage means an enlarged damage concerned to property, or breakage of materials.

- After installation work has finished, check there is no trouble by a test operation, and explain using method and maintenance method to the customers based on the Owner's Manual.  
Please ask the customers to keep this Installation Manual together with the Owner's Manual.

**WARNING**

**Ask a shop or a professional dealer to install the air conditioner.**

If you will install by yourself, a fire, an electric shock, or water leak is caused.

**Using the tool or piping materials exclusive to R410A, install the air conditioner surely according to this Installation Manual.**

The pressure of the used HFC system R410A refrigerant is higher approx. 1.6 times of that of the former refrigerant. If the exclusive piping materials are not used, or there is imperfection in installation, a crack or an injury is caused and also a water leak, an electric shock, or a fire may be caused.

**Take measures so that the refrigerant does not exceed the limit concentration even if it leaks when installing the air conditioner in a small room.**

For the measures not to exceed the limit of concentration, contact the dealer. If the refrigerant leaks and it exceeds the limit of concentration, an accident of oxygen shortage is caused.

**Install the air conditioner at a place which is satisfactorily bearable to weight.**

If strength is insufficient, the unit may fall down resulting in human injury.

**Perform a specified installation work against a strong wind such as typhoon or earthquake.**

If the air conditioner is imperfectly installed, an accident by falling or dropping may be caused.

**If refrigerant gas leaks during installation work, ventilate the room.**

If the leaked refrigerant gas approaches to fire, noxious gas may generate.

**After installation work, confirm that refrigerant gas does not leak.**

If refrigerant gas leaks in the room, and approaches to fire such as fan heater, stove or kitchen range, generation of noxious gas may be caused.

**Never recover refrigerant in the outdoor unit.**

Be sure to use a refrigerant recovery device to recover refrigerant in reinstallation or repair work. Recovery of refrigerant in the outdoor unit is unavailable; otherwise a serious accident such as crack or human injury is caused.

**A person qualified for the electric work should deal with the electric construction conforming to the regulations of the local electric company and the Installation Manual. Be sure to use the exclusive circuit.**

If there is capacity shortage of the power supply circuit or incomplete installation, a fire or an electric shock is caused.

**For cabling, use the specified cables and connect them securely so that external force of cable does not transmit to the terminal connecting section.**

If connection or fixing is incomplete, a fire, etc may be caused.

**Be sure to connect earth wire.**

Do not connect earth wire to gas pipe, water pipe, lightning rod, nor earth wire of telephone. If grounding is incomplete, an electric shock is caused.

**CAUTION**

**Do not install the air conditioner at a place where combustible gas may leak.**

If gas leaks and is collected at surrounding the unit, the production of fire may be caused.

**Be sure to attach an earth leakage breaker; otherwise an electric shock may be caused.**

**Using a torque wrench, tighten the flare nut in the specified method.**

If the flare nut is exceedingly tightened, the flare nut is broken and a refrigerant leakage may be caused after a long time has passed.

# 1 Outdoor Unit / INSTALLATION MANUAL [ VOLUME-1 ]

## INSTALLATION OF NEW REFRIGERANT AIR CONDITIONER

**This air conditioner adopts the new HFC refrigerant (R410A) which does not deplete the ozone layer.**

- R410A refrigerant is apt to be affected by impurity such as water, oxidizing membrane, or oils because the pressure of R410A refrigerant is higher than that of the former refrigerant by approx. 1.6 times. Accompanied with adoption of the new refrigerant, refrigerating oil has been also changed. Therefore pay attention so that water, dust, former refrigerant, or refrigerating oil does not enter into the refrigerating cycle of the new refrigerant air conditioner during installation work.
- To prevent from mixing of refrigerant or refrigerating oil, the size of charge port of the main unit or connecting section of installation tool differs from that of the air conditioner for the former refrigerant. Accordingly the exclusive tools are required for the new refrigerant (R410A) as shown below.
- For connecting pipes, use the new and clean piping materials so that water or dust does not enter.

### Required tools and cautions on handling

It is necessary to prepare the tools and parts as described below for the installation work.

The tools and parts which will be newly prepared in the following items should be restricted to the exclusive use.

### Explanation of symbols

- : Newly prepared (It is necessary to use it properly exclusive to R410A separated from those for R22 or R407C.)
- : Former tool is available.

Used tools	Usage	Proper use of tools/parts
Gauge manifold	Vacuuming or charging of refrigerant and operation check	● Newly prepared, Exclusive to R410A
Charging hose		● Newly prepared, Exclusive to R410A
Charging cylinder	Charges refrigerant	Unusable (Use the Refrigerant charging balance.)
Gas leak detector	Checks gas leak	● Newly prepared
Vacuum pump	Vacuum drying	Usable if a counter-flow preventive adapter is attached
Vacuum pump with counter-flow preventive adapter	Vacuum drying	○ : R22 (Existing article)
Flare tool	Flare processing of pipes	○ : Usable by adjusting size
Bender	Bending processing of pipes	○ : R22 (Existing article)
Refrigerant recovery device	Recovers refrigerant	● Exclusive to R410A
Torque wrench	Tightens flare nut	● Newly prepared, exclusive to Ø12.7mm and Ø15.9mm
Pipe cutter	Cuts pipes	○ : R22 (Existing article)
Refrigerant cylinder	Charges refrigerant	● Exclusive to R410A ID : Refrigerant name entered
Welding machine/ Nitrogen gas cylinder	Welding of pipes	○ : R22 (Existing article)
Refrigerant charging balance	Charges refrigerant	○ : R22 (Existing article)

# 2 Outdoor Unit / INSTALLATION MANUAL [ VOLUME-1 ]

## SELECTION OF INSTALLATION PLACE

### ⚠ WARNING

**Install the air conditioner certainly at a place bearable to weight.**

If strength is insufficient, the unit may fall down resulting in human injury.

### ⚠ CAUTION

**Do not install the air conditioner at a place where combustible gas may leak.**

If gas leaks and is collected at surrounding the unit, the production of fire may be caused.

**Upon customer's approval, install the air conditioner at a place where satisfies the following conditions.**

- Place where it can be installed horizontally.
- Place which can reserve a sufficient service space for safe maintenance or check.
- Place where there is no problem even if the drained water flows.

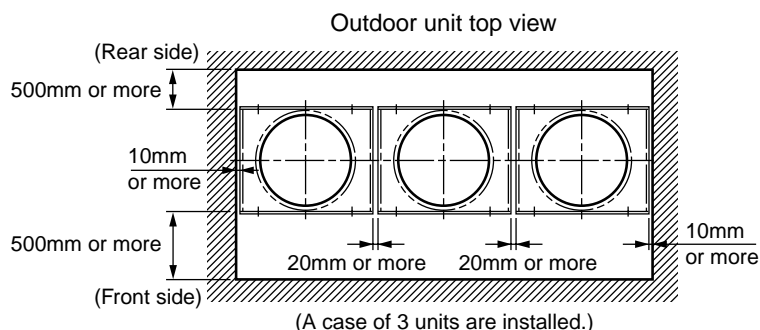
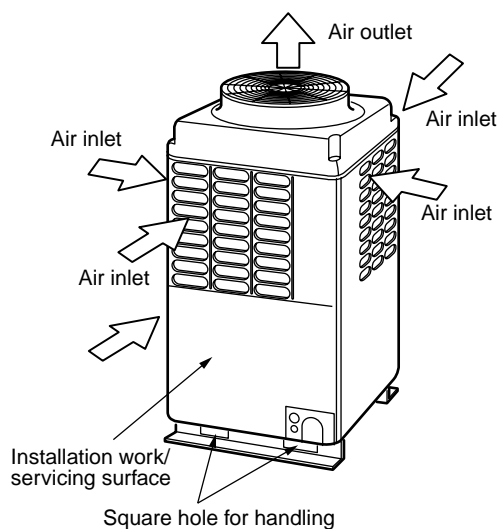
**Apply electric insulation between metal section of the building and metal section of the air conditioner in conformance with the Local Regulation.**

**Avoid the following places.**

- Salty place (seaside area) or place with much gas sulfide (hot spring area)  
(If selecting such a place, a special maintenance is required.)
- Place where oil (including machine oil), steam, oil smoke or corrosive gas generates.
- Place where a device generating high frequency (inverter, non-utility generator, medical apparatus, or communication equipment) is set. (A bad influence may generate by malfunction of the air conditioner, control error, or noise for such equipment.)
- Place where discharged air of the outdoor unit blows against windows of neighbor.
- Place where operation sound of the outdoor unit transmits.  
(Especially at the boundary line with neighbor, install the air conditioner considering the noise.)
- Place unbearable to weight of the unit.
- Place with ill ventilation.

### Installation space

Considering functions, reserve space necessary for installation work and servicing.

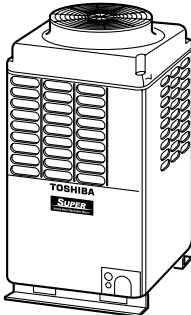


### NOTES)

- \*1 : If there is an obstacle at the upper side of the outdoor unit, reserve a space by 2000mm or more to the top end of the outdoor unit.
- \*2 : Arrange the height of obstacle around two outdoor units up to below 800mm from the bottom end of the outdoor unit.

## 2 SELECTION OF INSTALLATION PLACE

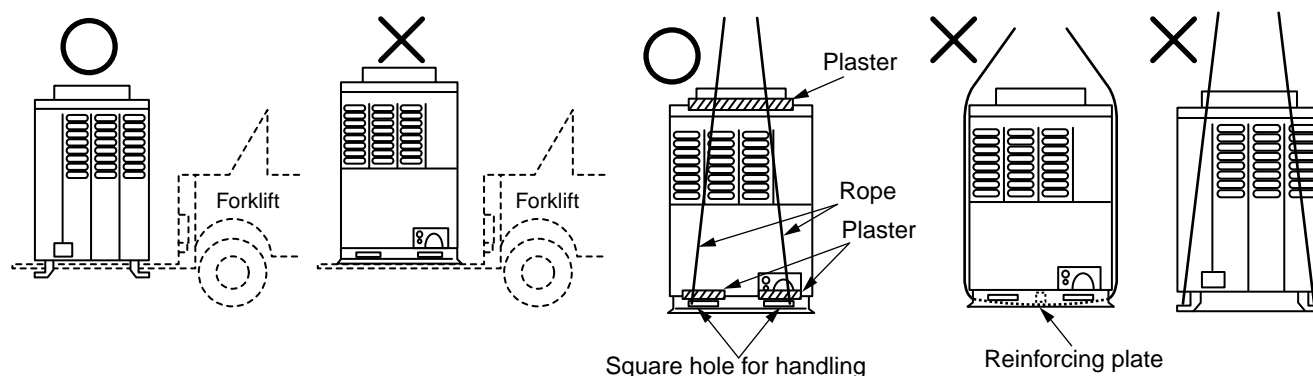
### Equipments

Equivalent HP	Inverter unit		
	8 HP	10 HP	12 HP
Model name	MMY-MAP0801FT8	MMY-MAP1001FT8	MMY-MAP1201FT8
Cooling capacity (kW)	22.4	28.0	33.5
Heating capacity (kW)	25.0	31.5	35.5
Appearance			
			

## 3 OUTDOOR UNIT CARRYING IN

Handle the outdoor unit in care with the following items.

1. When using a forklift, etc for loading/unloading in transportation, insert pawl of the forklift into the square hole for handling as shown below.
2. When lifting up the unit, insert a rope sufficiently bearable to unit mass into the square hole for handling, and cord the unit from four sides. (Apply a plaster to position where rope fits outdoor unit itself so that flaw or deformation does not generate on the outer surface of the outdoor unit.)  
(There provided the reinforcing plates on the side surfaces, so the rope cannot be passed.)





# 4 Outdoor Unit / INSTALLATION MANUAL [ VOLUME-1 ]

## INSTALLATION OF OUTDOOR UNIT

### ⚠ WARNING

**Perform a specified installation work against a strong wind such as typhoon or earthquake.**

If the air conditioner is imperfectly installed, an accident by falling or dropping may be caused.

**Install the air conditioner certainly at a place bearable to weight.**

If strength is insufficient, the unit may fall down resulting in human injury.

**Drain water is discharged from the outdoor unit. (Especially in heating time)**

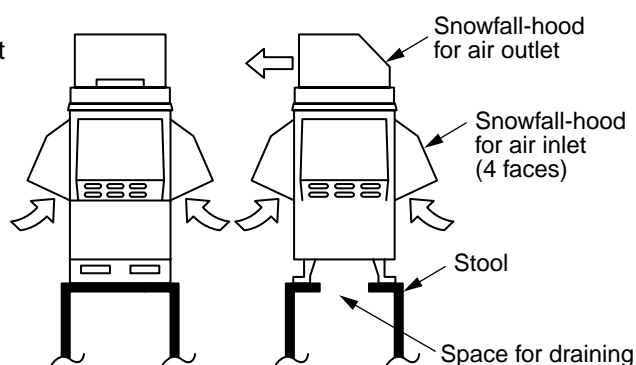
Install the outdoor unit at a place where has good drainage.

**For installation, be careful to the strength and the level of the foundation so that an abnormal sound (Vibration, noise) does not generate.**

In the snowfall area, apply the following measures against snowfall for the outdoor unit. (See the figure on the right.)  
(Incomplete snowfall-proof measures causes a trouble.)

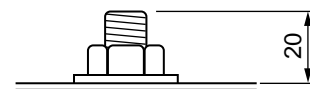
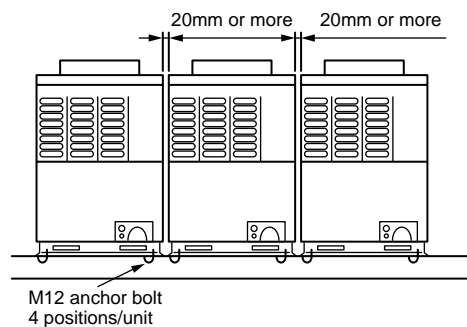
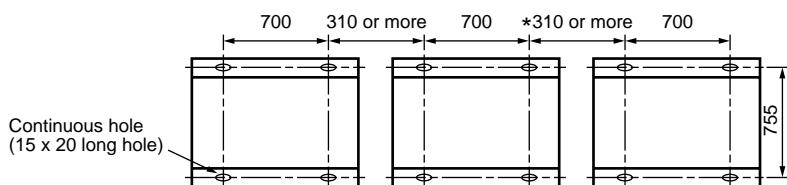
Place a higher stool under the unit, and mount the snowfall-hoods to air inlet and air outlet so that snows do not have influence.

(For the above works, please arrange at the field.)

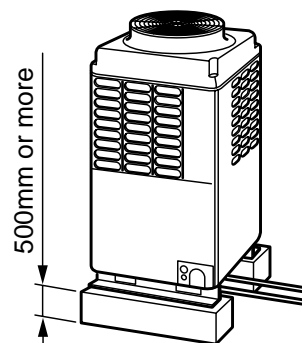


- To install the multiple outdoor units, arrange them with 20mm or more intervals.  
Fix each outdoor unit with M12 anchor bolts at 4 positions.  
Length by 20mm is appropriate for an anchor bolt.

- Anchor bolt pitch is as shown below:

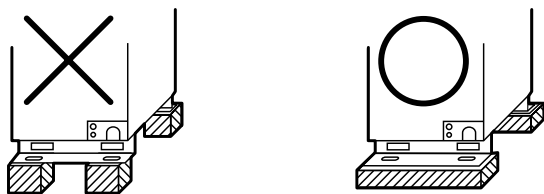


- When drawing out the refrigerant pipe from underside, set height of the stool by 500mm or more.

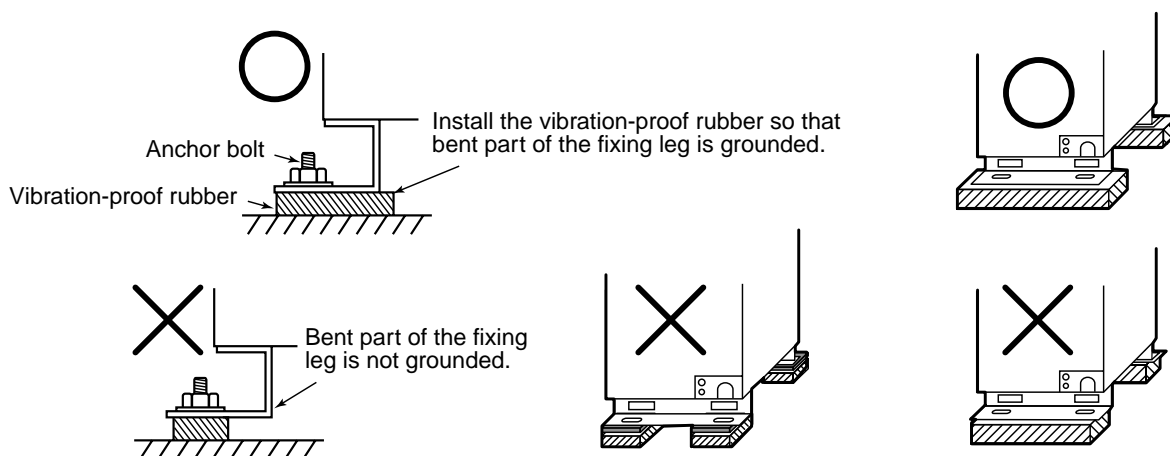


## 4 INSTALLATION OF OUTDOOR UNIT

3. Do not use four stools to set the four corners.



4. Mount the vibration-proof rubber (vibration-proof block etc.) so that it catch whole the clamping leg.



If the refrigerant gas leaks in the room and comes to contact with a fire such as fan heater, stove, or kitchen range, the noxious gas may generate.

1. In a welding work for the refrigerant pipes, be sure to use the nitrogen gas in order to prevent oxidation inside of the pipes; otherwise clogging of the refrigerating cycle due to oxidized scale generates.
2. Use clean and new pipes for the refrigerant pipes and perform piping work so that water or dust is not mixed.
3. Be sure to use a double spanner to loosen or tighten the flare nut. If a single spanner is used, a required tightening cannot be obtained. Tighten the flare not with the specified torque.

Outer dia. of copper pipe	Tightening torque (N·m)
12.7 mm	50 to 62 (5.0 to 6.2 kgf·m)
15.8 mm	62 to 73 (6.2 to 7.3 kgf·m)

Outer dia. of copper pipe	Tightening torque (N•m)
12.7 mm	50 to 62 (5.0 to 6.2 kgf-m)
15.9 mm	68 to 82 (6.8 to 8.2 kgf-m)

## 5 REFRIGERANT PIPING

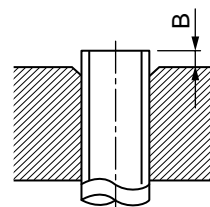
### Pipe connecting method of valve (Example)

Using the attached pipes as shown in the following figure, braze elbows, sockets, and pipes which are procured locally.

MMY-		Drawing out forward	Drawing out downward
MAP0801FT8 MAP1001FT8	Liquid pipe	Use the attached pipe for connection.	Pipe connection at the local site (Bend rightward slightly.)
	Discharge gas pipe	Use the attached pipe (L-shape) and connect it with socket.	Use the attached pipe (Straight pipe) and connect it with socket.
	Suction gas pipe	Cut L-shape pipe and connect it with elbow, attached pipe and socket.	Cut L-shape pipe and connect it with attached pipe and socket.
MAP1201FT8	Liquid pipe	Use the attached pipe for connection.	Pipe connection at the local site (Bend rightward slightly.)
	Discharge gas pipe	Use the attached pipe and connect it with socket.	Use the attached pipe (Straight pipe) and connect it with socket.
	Suction gas pipe	Cut L-shape pipe and connect it with attached pipe.	Cut L-shape pipe and connect it with attached pipe and socket.

### • Extruding margin of copper pipe with flare machining : B (Unit: mm)

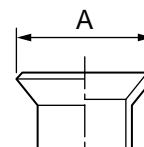
Copper pipe outer dia.	Rigid (Clutch type)		Imperial (Wing nut)
	R410A tool used	Conventional tool used	
12.7 15.9	0 to 0.5	1.0 to 1.5	2.0 to 2.5



\* When using the conventional flare tool, to connect R410A pipes with flaring, make a margin approx. 0.5mm longer than that of R22 pipe so that the flare size matches with the specified one. It is convenient to use a copper pipe gauge for size adjustment of the extruding margin.

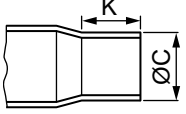
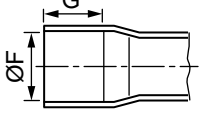
### • Extruding margin of copper pipe with flare tools : A (Unit: mm)

Copper pipe outer dia.	A <sup>+0</sup> <sub>-0.4</sub>
12.7	16.6
15.9	19.7



# Outdoor Unit / INSTALLATION MANUAL [ VOLUME-1 ]

## • Coupling size of brazed pipe

Connected section	
External size	Internal size
	

(Unit: mm)

Standard outer dia. of connected copper pipe	Connected section					Min. thickness of coupling
	External size	Internal size	Min. depth of insertion		Oval value	
	Standard outer dia. (Allowable difference)					
	C	F	K	G		
6.35	6.35 (±0.03)	6.45 ( <sup>+0.04</sup> <sub>-0.02</sub> )	7	6	0.06 or less	0.50
9.52	9.52 (±0.03)	9.62 ( <sup>+0.04</sup> <sub>-0.02</sub> )	8	7	0.08 or less	0.60
12.70	12.70 (±0.03)	12.81 ( <sup>+0.04</sup> <sub>-0.02</sub> )	9	8	0.10 or less	0.70
15.88	15.88 (±0.03)	16.00 ( <sup>+0.04</sup> <sub>-0.02</sub> )	9	8	0.13 or less	0.80
19.05	19.05 (±0.03)	19.19 ( <sup>+0.03</sup> <sub>-0.03</sub> )	11	10	0.15 or less	0.80
22.22	22.22 (±0.03)	22.36 ( <sup>+0.03</sup> <sub>-0.03</sub> )	11	10	0.16 or less	0.82
28.58	28.58 (±0.04)	28.75 ( <sup>+0.06</sup> <sub>-0.02</sub> )	13	12	0.20 or less	1.00

## Selection of pipe materials and size

### • Selection of pipe material

Material: Phosphorus deoxidation seam-less pipe

### • Capacity code of indoor and outdoor units

- For the indoor unit, the capacity code is decided at each capacity rank.
- The capacity codes of the outdoor units are decided at each capacity rank. The maximum No. of connectable indoor unit and the total value of capacity codes of the indoor units are also decided.

(Compared with the capacity code of the outdoor unit, the total value of capacity codes of the connectable indoor units differs based on the height difference between the indoor units.

- When height difference between the indoor units is below 15m: Up to 135% of capacity code of the outdoor unit (in case of MMY-MAP1201FT: 120% or less)
- When height difference between the indoor units is over 15m: Up to 105% of capacity code of the outdoor unit

Table 1

Indoor unit capacity rank	Capacity code	
	Equivalent to HP	Equivalent to capacity
007 type	0.8	2.2
009 type	1	2.8
012 type	1.25	3.6
015 type	1.7	4.5
018 type	2	5.6
024 type	2.5	7.1
027 type	3	8
030 type	3.2	9
036 type	4	11.2
048 type	5	14
056 type	6	16

Table 2

Outdoor unit model name	Capacity code		No. of indoor units	Total capacity code of connectable indoor units			
				Min		Max.	
	Equivalent to HP	Equivalent to capacity		Equivalent to HP	Equivalent to capacity	Equivalent to HP	Equivalent to capacity
MMY-MAP0801FT8	8	22.4	13	5.6	15.7	10.8	30.2
MMY-MAP1001FT8	10	28.0	16	7.0	19.6	13.5	37.8
MMY-MAP1201FT8	12	33.5	16	8.4	23.5	14.4	40.2

# Outdoor Unit / INSTALLATION MANUAL [ VOLUME-1 ]

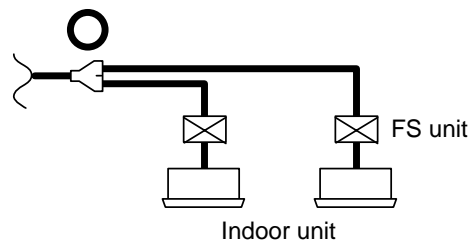
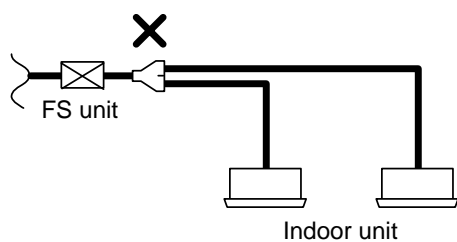
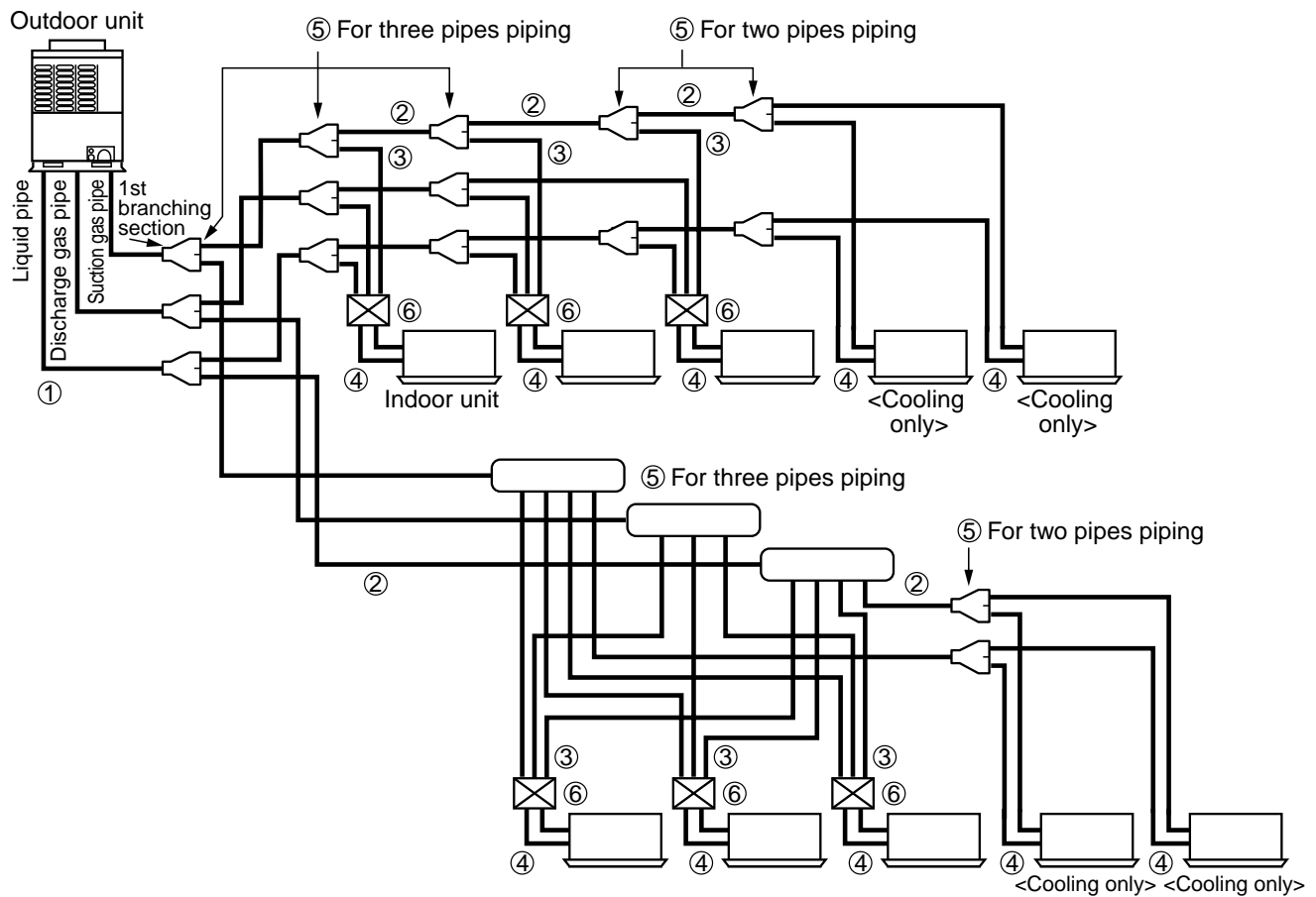
## 5 REFRIGERANT PIPING

No.	Piping parts	Name	Selection of pipe size	Remarks																											
①	Outdoor unit ↓ 1st branching joint	Outdoor unit main pipe	1) Connecting pipe outdoor unit <table><tr><th>Model name</th><th>Suction gas side</th><th>Discharge gas side</th><th>Liquid side</th></tr><tr><td>MMY-MAP0801FT8</td><td>Ø22.2</td><td>Ø19.1</td><td>Ø12.7</td></tr><tr><td>MMY-MAP1001 FT8</td><td>Ø22.2</td><td>Ø19.1</td><td>Ø12.7</td></tr><tr><td>MMY-MAP1201 FT8</td><td>Ø28.6</td><td>Ø19.1</td><td>Ø12.7</td></tr></table>	Model name	Suction gas side	Discharge gas side	Liquid side	MMY-MAP0801FT8	Ø22.2	Ø19.1	Ø12.7	MMY-MAP1001 FT8	Ø22.2	Ø19.1	Ø12.7	MMY-MAP1201 FT8	Ø28.6	Ø19.1	Ø12.7	Same to connecting pipe size of outdoor unit											
Model name	Suction gas side	Discharge gas side	Liquid side																												
MMY-MAP0801FT8	Ø22.2	Ø19.1	Ø12.7																												
MMY-MAP1001 FT8	Ø22.2	Ø19.1	Ø12.7																												
MMY-MAP1201 FT8	Ø28.6	Ø19.1	Ø12.7																												
②	Branching section ↓ Branching section	Branching pipe	2) Pipe size between branching sections <table><tr><th colspan="2">Total capacity codes of indoor units at downstream side</th><th rowspan="2">Suction gas side</th><th rowspan="2">Discharge gas side</th><th rowspan="2">Liquid side</th></tr><tr><th>Equivalent to capacity</th><th>Equivalent to HP</th></tr><tr><td>Below 18.0</td><td>Below 6.4</td><td>Ø15.9</td><td>Ø12.7</td><td>Ø9.5</td></tr><tr><td>18.0 to below 34.0</td><td>6.4 to below 12.2</td><td>Ø22.2</td><td>Ø19.1</td><td>Ø12.7</td></tr><tr><td>34.0 to below 45.5</td><td>12.2 to below 16.2</td><td>Ø28.6</td><td>Ø22.2</td><td>Ø15.9</td></tr></table> <p>* If exceeding the main pipe size, decide the size same to main pipe size.</p> <p>* When two pipes are used for the circuits exclusive to cooling, use pipes at liquid and suction gas sides.</p>	Total capacity codes of indoor units at downstream side		Suction gas side	Discharge gas side	Liquid side	Equivalent to capacity	Equivalent to HP	Below 18.0	Below 6.4	Ø15.9	Ø12.7	Ø9.5	18.0 to below 34.0	6.4 to below 12.2	Ø22.2	Ø19.1	Ø12.7	34.0 to below 45.5	12.2 to below 16.2	Ø28.6	Ø22.2	Ø15.9	Pipe size differs based on total capacity code value of indoor units at downstream side.  If the total value exceeds the capacity code of the outdoor unit, apply capacity code of the outdoor unit. (See tables 1 and 2.)					
Total capacity codes of indoor units at downstream side		Suction gas side	Discharge gas side	Liquid side																											
Equivalent to capacity	Equivalent to HP																														
Below 18.0	Below 6.4	Ø15.9	Ø12.7	Ø9.5																											
18.0 to below 34.0	6.4 to below 12.2	Ø22.2	Ø19.1	Ø12.7																											
34.0 to below 45.5	12.2 to below 16.2	Ø28.6	Ø22.2	Ø15.9																											
③	End branching section ↓ Flow selector unit	Connecting pipe of flow selector unit	3) Pipe size between end branching section and flow selector unit <table><tr><th colspan="2">Total capacity codes of indoor units at downstream side</th><th rowspan="2">Suction gas side</th><th rowspan="2">Discharge gas side</th><th rowspan="2">Liquid side</th></tr><tr><th>Equivalent to capacity</th><th>Equivalent to HP</th></tr><tr><td>Below 4.5</td><td>Below 1.7</td><td>Ø12.7</td><td>Ø9.5</td><td>Ø6.4</td></tr><tr><td>4.5 to below 18.0</td><td>1.7 to below 6.4</td><td>Ø15.9</td><td>Ø12.7</td><td>Ø9.5</td></tr></table>	Total capacity codes of indoor units at downstream side		Suction gas side	Discharge gas side	Liquid side	Equivalent to capacity	Equivalent to HP	Below 4.5	Below 1.7	Ø12.7	Ø9.5	Ø6.4	4.5 to below 18.0	1.7 to below 6.4	Ø15.9	Ø12.7	Ø9.5											
Total capacity codes of indoor units at downstream side		Suction gas side	Discharge gas side	Liquid side																											
Equivalent to capacity	Equivalent to HP																														
Below 4.5	Below 1.7	Ø12.7	Ø9.5	Ø6.4																											
4.5 to below 18.0	1.7 to below 6.4	Ø15.9	Ø12.7	Ø9.5																											
④	Branching section or flow selector unit ↓ Indoor unit	Connecting pipe of indoor unit	4) Connecting pipe size of indoor unit <table><tr><th colspan="2">Capacity rank</th><th>Gas side</th><th>Liquid side</th></tr><tr><td rowspan="2">007 to 012 type</td><td>Real length: Below 15m</td><td>Ø9.5</td><td rowspan="2">Ø6.4</td></tr><tr><td>Real length: Over 15m *</td><td>Ø12.7</td></tr><tr><td colspan="2">015 to 018 type</td><td>Ø12.7</td><td rowspan="2">Ø9.5</td></tr><tr><td colspan="2">024 to 056 type</td><td>Ø15.9</td></tr></table> <p>* When pipe length between the end branching section and cooling-only indoor unit exceeds 15m, decide pipe size at gas side to the bigger one with Ø12.7.</p>	Capacity rank		Gas side	Liquid side	007 to 012 type	Real length: Below 15m	Ø9.5	Ø6.4	Real length: Over 15m *	Ø12.7	015 to 018 type		Ø12.7	Ø9.5	024 to 056 type		Ø15.9											
Capacity rank		Gas side	Liquid side																												
007 to 012 type	Real length: Below 15m	Ø9.5	Ø6.4																												
	Real length: Over 15m *	Ø12.7																													
015 to 018 type		Ø12.7	Ø9.5																												
024 to 056 type		Ø15.9																													
⑤	Branching section	Branching header of Y-shape branching joint	5) Selection of branching joint/header <table><tr><th rowspan="2"></th><th colspan="2">Total capacity codes of indoor units</th><th colspan="2">Model name RBM-</th></tr><tr><th>Equivalent to capacity</th><th>Equivalent to HP</th><th>For 3 pipes piping</th><th>For 2 pipes piping</th></tr><tr><td rowspan="2">Y-shape branching joint * 1, 2</td><td>Below 18.0</td><td>Below 6.4</td><td>BY53FE</td><td>BY53E</td></tr><tr><td>18.0 to below 40.0</td><td>6.4 to below 14.2</td><td>BY103FE</td><td>BY103E</td></tr><tr><td rowspan="2">Branching header * 1, 2, 3</td><td>Below 40.0</td><td>Below 14.2</td><td>HY1043FE</td><td>HY1043E</td></tr><tr><td>Below 40.0</td><td>Below 14.2</td><td>HY1083FE</td><td>HY1083E</td></tr></table> <p>*1 For branching pipe of the 1st branching section, select one by the outdoor unit capacity code.</p> <p>*2 When total capacity codes of indoor units exceed capacity code of outdoor unit, select one by capacity code of outdoor unit.</p> <p>*3 1 line after header branching is connectable up to total maximum capacity codes 6.0 (Equivalent to HP).</p>		Total capacity codes of indoor units		Model name RBM-		Equivalent to capacity	Equivalent to HP	For 3 pipes piping	For 2 pipes piping	Y-shape branching joint * 1, 2	Below 18.0	Below 6.4	BY53FE	BY53E	18.0 to below 40.0	6.4 to below 14.2	BY103FE	BY103E	Branching header * 1, 2, 3	Below 40.0	Below 14.2	HY1043FE	HY1043E	Below 40.0	Below 14.2	HY1083FE	HY1083E	
	Total capacity codes of indoor units		Model name RBM-																												
	Equivalent to capacity	Equivalent to HP	For 3 pipes piping	For 2 pipes piping																											
Y-shape branching joint * 1, 2	Below 18.0	Below 6.4	BY53FE	BY53E																											
	18.0 to below 40.0	6.4 to below 14.2	BY103FE	BY103E																											
Branching header * 1, 2, 3	Below 40.0	Below 14.2	HY1043FE	HY1043E																											
	Below 40.0	Below 14.2	HY1083FE	HY1083E																											
⑥	Branching	Flow selector unit	6) Selection of flow selector unit <table><tr><th>Model name</th><th>Capacity rank of connectable indoor unit</th></tr><tr><td>RBM-Y1121FE</td><td>007 to 030 type</td></tr><tr><td>RBM-Y1801FE</td><td>036 to 056 type</td></tr></table> <p>* Confirm also Installation Manual of flow selector unit.</p>	Model name	Capacity rank of connectable indoor unit	RBM-Y1121FE	007 to 030 type	RBM-Y1801FE	036 to 056 type																						
Model name	Capacity rank of connectable indoor unit																														
RBM-Y1121FE	007 to 030 type																														
RBM-Y1801FE	036 to 056 type																														

# Outdoor Unit / INSTALLATION MANUAL [ VOLUME-1 ]

## Minimum wall thickness for R410A application

Soft	Half Hard or Hard	OD (Inch)	OD (mm)	Minimum wall thickness (mm)
OK	OK	1/4"	6.35	0.80
OK	OK	3/8"	9.52	
OK	OK	1/2"	12.70	
OK	OK	5/8"	15.88	1.00
NG	OK	3/4"	19.05	
NG	OK	7/8"	22.20	
NG	OK	1.1/8"	28.58	

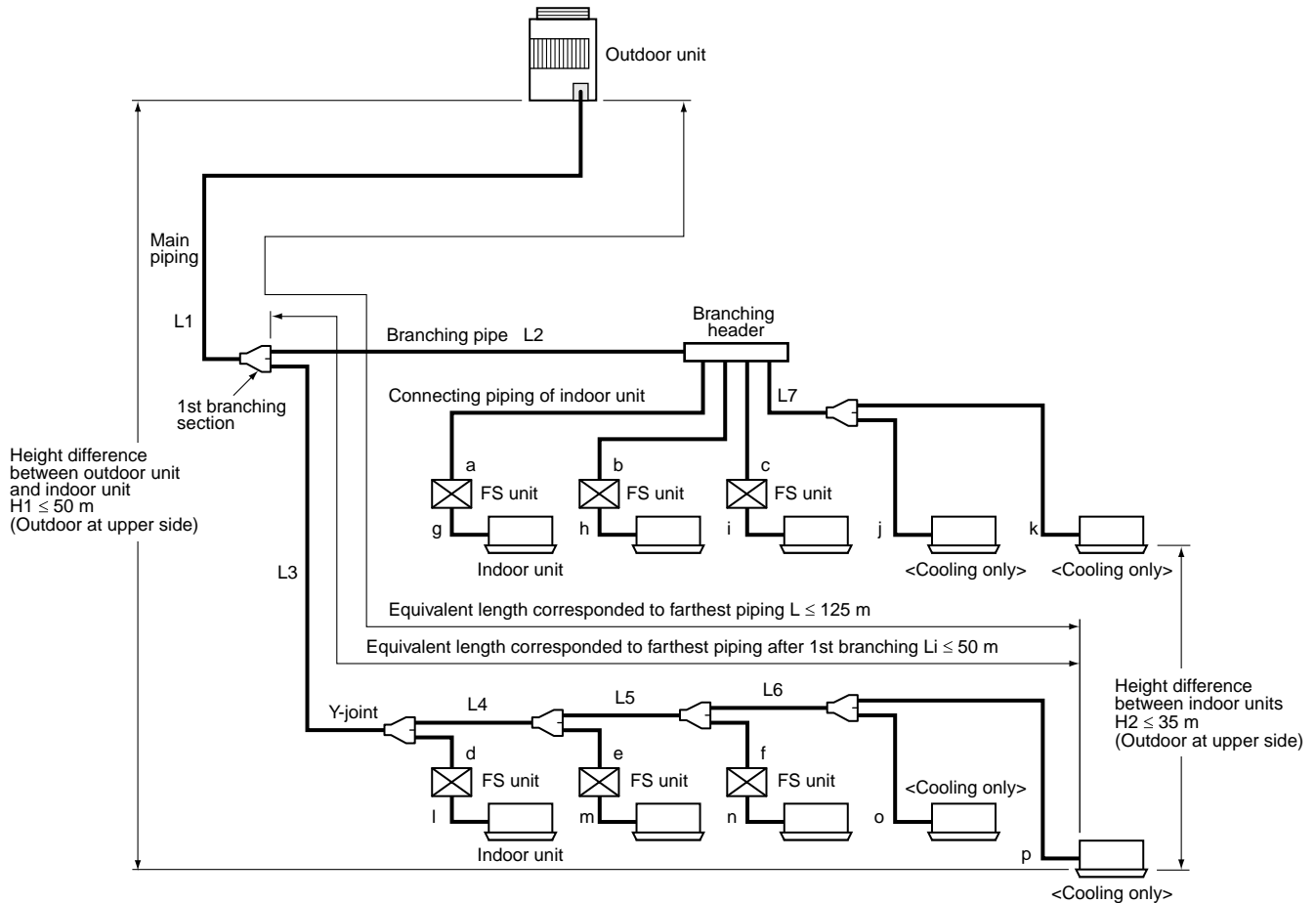


### [NOTE] :

Don't connect two or more indoor units to one FS unit. Arrange one indoor unit and one FS unit set to 1 by 1.

# 5 REFRIGERANT PIPING

## Allowable length of refrigerant pipe and height difference



### • Allowable length/height difference of the refrigerant pipe

			Allowable value	Pipe section
Pipe length	Total extended pipe length (Liquid pipe/real length)		250m	$L1 + L2 + L3 + L4 + L5 + L6 + L7 + a + b + c + d + e + f + g + h + i + j + k + l + m + n + o + p$
	Farthest equivalent piping length L (*1)		125m	$L1 + L3 + L4 + L5 + L6 + p$
	Max. equivalent length of main pipe		85m	L1
	Farthest equivalent piping length from 1st branch Li (*1)		50m	$L3 + L4 + L5 + L6 + p$
	Farthest equivalent piping length between indoor unit and end branching section		30m	a + g, b + h, c + i, d + l, e + m, f + n, j, k, o, p.
	Max. real length between flow selector unit and indoor unit		15m	g, h, i, l, m, n
Height difference	Height difference between indoor unit and outdoor unit H1	Outdoor at upper side	50m	—
		Outdoor at lower side	30m	—
	Height difference between indoor units H2	Outdoor at upper side	35m	—
		Outdoor at lower side	15m	—

\*1 : The farthest indoor unit from 1st branch is (p).



## Airtight test

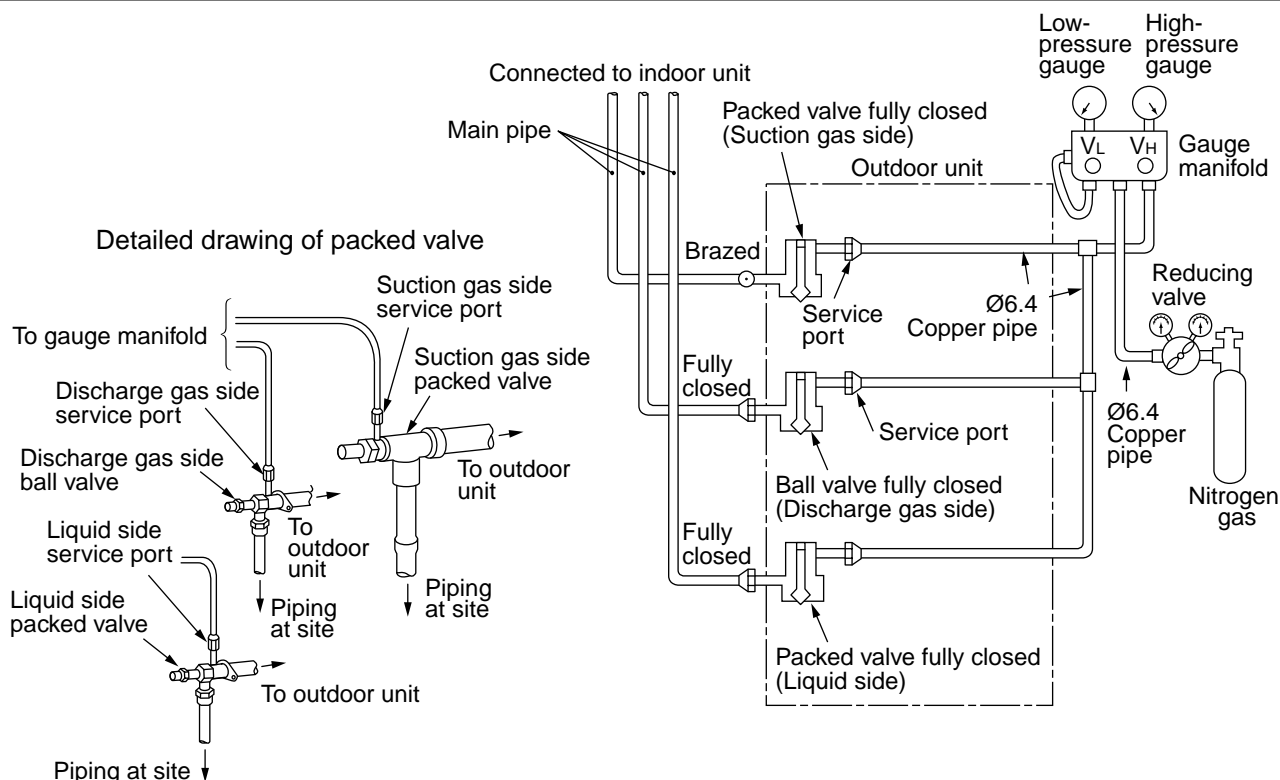
After the refrigerant piping has finished, execute an airtight test. For an airtight test, connect a nitrogen gas bomb as shown in the figure below, and apply pressure.

- Be sure to apply pressure from the service ports of the packed valves (or ball valves) at liquid side, discharge gas side, and suction gas side.
- An air tight test can be only performed to the service ports at liquid side, discharge gas side, and suction gas side of the outdoor unit.
- Close fully valves at liquid side, discharge gas side, and suction gas side. As there is possibility that nitrogen gas enters in the refrigerant cycle, re-tighten the valve rods before applying pressure.  
(Re-tightening of the valve rods are unnecessary for valves at discharge gas side because they are ball valves.)
- For each refrigerant line, apply pressure gradually with steps at liquid side, discharge gas side, and suction gas side.

**Be sure to apply pressure to suction gas side, discharge gas side, and liquid side.**

## REQUIREMENT

Never use "Oxygen", "Flammable gas" and "Noxious gas" in an airtight test.



**STEP 1 :** Apply pressure 0.3MPa (3.0kg/cm<sup>2</sup>G) for 3 minutes or more.

**STEP 2 :** Apply pressure 1.5MPa (15kg/cm<sup>2</sup>G) for 3 minutes or more.

**STEP 3 :** Apply pressure 3.73MPa (38kg/cm<sup>2</sup>G) for approx. 24 hours.

- Check pressure down.

No pressure down: Accepted      Pressure down: Check the leaked position.

( However, if there is difference of ambient temp. between when pressure has been applied and when 24 hours passed, pressure changes by approx. 0.01MPa (0.1kg/cm<sup>2</sup>G) per 1°C. Correct the pressure. )

## Leaked position check

When a pressure-down is detected in STEP 1, STEP 2, or STEP 3, check the leakage at the connecting points. Check leakage with hearing sense, feeler, foaming agent, etc, and perform re-brazing or re-tightening of flare if leakage is detected.

## 5 REFRIGERANT PIPING

### Air purge

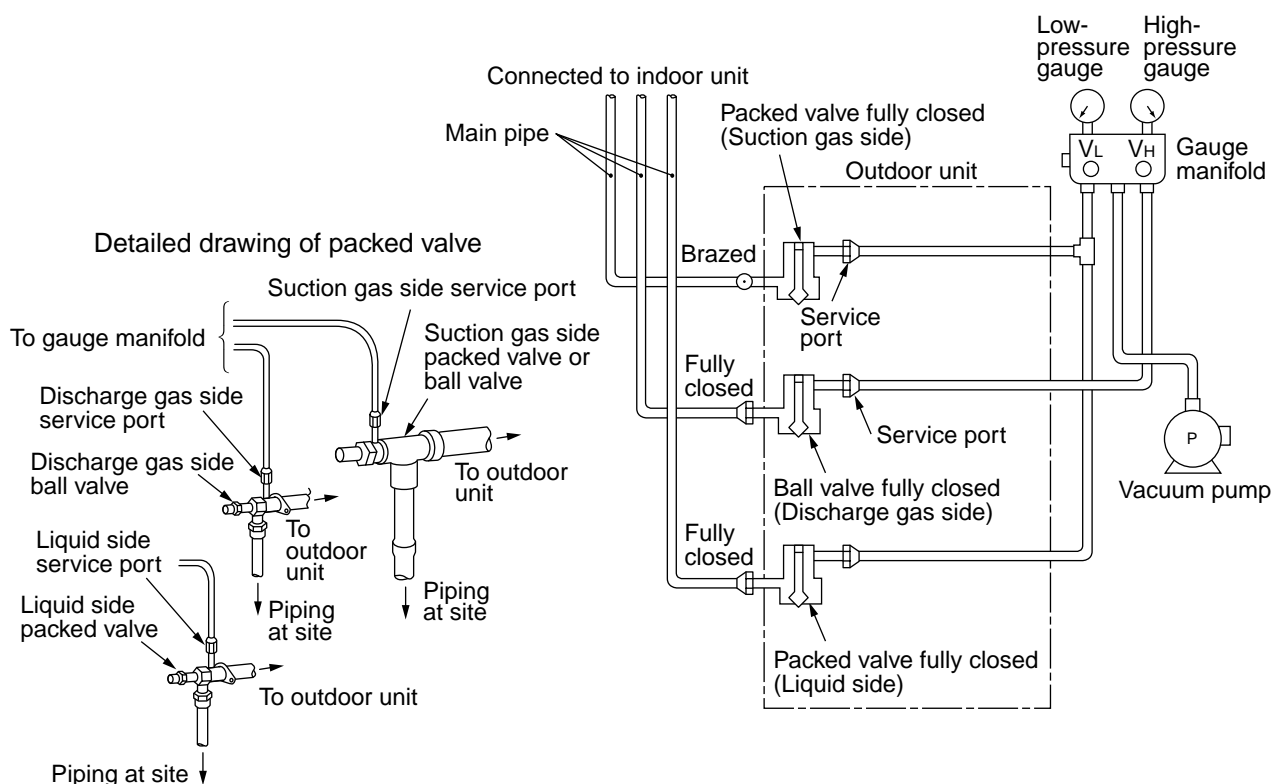
For the air purge at installation time (Discharge of air in connecting pipes), use “**Vacuum pump method**” from viewpoint of protection of earth environment.

- For protection of earth environment, do not discharge the flon gas in the air.
- Using a vacuum pump, eliminate the remained air (nitrogen gas, etc.) in the unit. If gas remains, an absence of faculties may be caused.

After the airtight test, discharge nitrogen gas. Then connect the gauge manifold to the service ports at suction gas side, discharge gas side and liquid side, and connect the vacuum pump as shown in the following figure.

Be sure to perform vacuuming for suction gas side, discharge gas side and liquid side.

- Be sure to perform vacuuming from both suction gas side, discharge gas side and liquid side.
- Be sure to use a vacuum pump with counter-flow preventive function so that oil in the pump does not back up in the pipe of the air conditioner while the pump stops. (If oil in the vacuum pump enters in the air conditioner with R410A refrigerant, a trouble is caused in the refrigerating cycle.)



- Use a vacuum pump having a high vacuuming degree (below  $-755\text{mmHg}$ ) and a large exhaust gas amount (over  $40\text{L/minute}$ ).
- Perform vacuuming for 2 or 3 hours though time differs due to pipe length. In this time, check all packed valves at suction gas, discharge gas, and liquid sides are fully closed.
- If vacuuming valve amount is not decreased to below  $-755\text{mmHg}$  even after vacuuming for 2 hours or more, continue vacuuming for 1 hour or more. If  $-755\text{mmHg}$  or less cannot be obtained by 3 hours or more vacuuming, check the leaked position.
- When vacuuming valve reached to  $-755\text{mmHg}$  or less after vacuuming for 2 hours or more, close valves VL and VH of the gauge manifold fully, stop the vacuum pump, leave it as it is for 1 hour, and then check the vacuuming degree does not change. If it changed, there may be a leaked position. Check the leaked position.
- After the above procedure of vacuuming has finished, exchange the vacuum pump with a refrigerant cylinder and advance to the additional charging of refrigerant.

## Addition of refrigerant

After vacuuming work, exchange the vacuum pump with the refrigerant bomb and then start the additional charging work of refrigerant.

### Calculation of additional refrigerant charge amount

Refrigerant charge amount at shipment from the factory does not include the refrigerant for pipe at the local site. For refrigerant to be charged in pipe at the local site, calculate the amount and charge it additionally.

**NOTE)** If the additional refrigerant amount indicates minus as the result of calculation, use the air conditioner without addition of refrigerant.

Outdoor unit Model	MMY-MAP0801FT8	MMY-MAP1001FT8	MMY-MAP1201FT8
Charging amount (kg)	14.0		

<b>Additional refrigerant charge amount at local site</b> = $\left( \begin{array}{l} \text{Real length of liquid pipe} \\ \times \end{array} \begin{array}{l} \text{Additional refrigerant charge amount per 1m liquid pipe (Table 1)} \end{array} \right) \times 1.3$
--

Example : Additional charge amount R (kg) = {(L1 × 0.025kg/m) + (L2 × 0.055kg/m) + (L3 × 0.105kg/m)} × 1.3

L1 : Real total length of liquid pipe Ø6.4 (m)  
 L2 : Real total length of liquid pipe Ø9.5 (m)  
 L3 : Real total length of liquid pipe Ø12.7 (m)  
 System : 10HP

**Table-1**

Liquid pipe dia. (mm)	6.4	9.5	12.7
Additional refrigerant amount/1m liquid pipe (kg/m)	0.025	0.055	0.105

### Charging of refrigerant

- Keeping valve of the outdoor unit closed, be sure to charge the liquid refrigerant into service port at liquid side.
- If the specified amount of refrigerant cannot be charged, open fully valves of outdoor unit at liquid and discharge/suction gas sides, operate the air conditioner in COOL mode under condition that valve at suction gas side is a little returned to close side, and then charge refrigerant into service port at suction gas side. In this time, choke the refrigerant slightly by operating valve of the bomb to charge liquid refrigerant. The liquid refrigerant may be charged suddenly, therefore be sure to charge refrigerant gradually.
- When refrigerant leaks and refrigerant shortage occurs in the system, recover the refrigerant in the system and recharge refrigerant newly up to the correct level.

## REQUIREMENT

### <Entry of refrigerant charge amount>

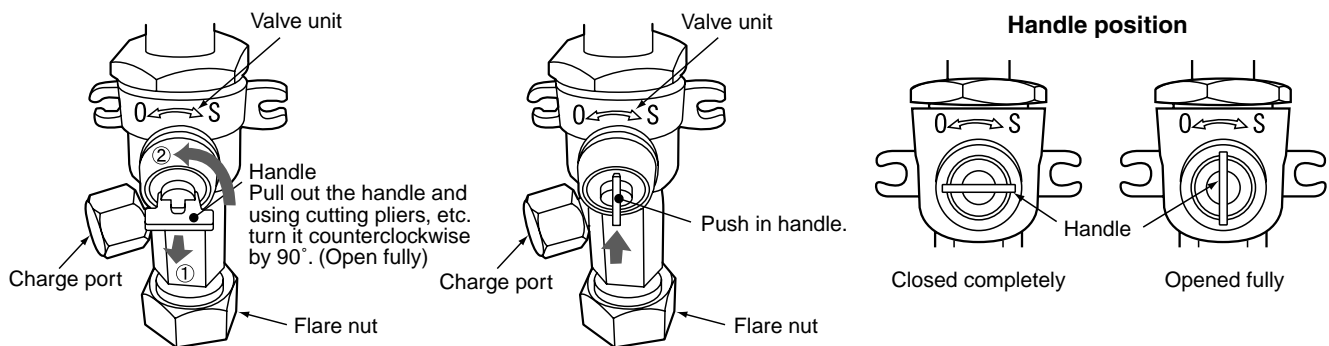
- Fill the additional refrigerant record column of the wiring diagram indication plate with the additional refrigerant amount at installation work, total refrigerant amount and the name of the service man who charged refrigerant at installation time.
- The total refrigerant amount means the total value of the refrigerant amount at shipment and the additional refrigerant amount at installation time. The refrigerant amount at the shipment is one described on the "Unit nameplate".

## 5 REFRIGERANT PIPING

### Full opening of valve

- Open valve of the outdoor unit fully.
- Using 4mm-hexagonal wrench, open fully the valve rods at liquid sides.
- Using a spanner, etc, open fully the valve rod of packed valve at suction gas side.
- Using the pinchers, open fully the handle of the ball valve at gas side.  
Be careful that handling of ball valve differs from that of packed valve.

### How to open the ball valve at gas side



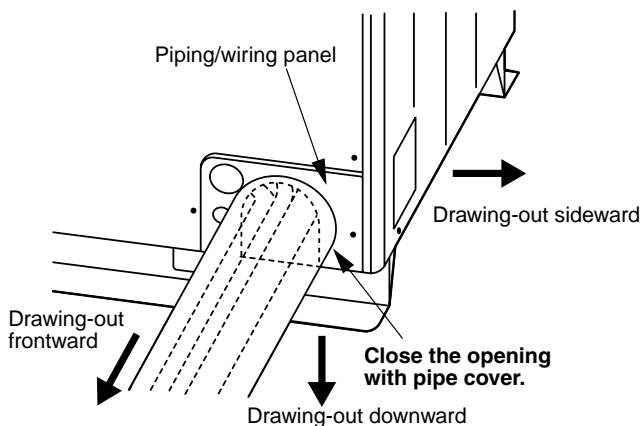
### Heat insulation for pipe

- Apply heat insulation of pipe separately at liquid, suction gas, discharge gas sides.
- Be sure to use thermal insulator with heat-resisting temp. 120°C or more.

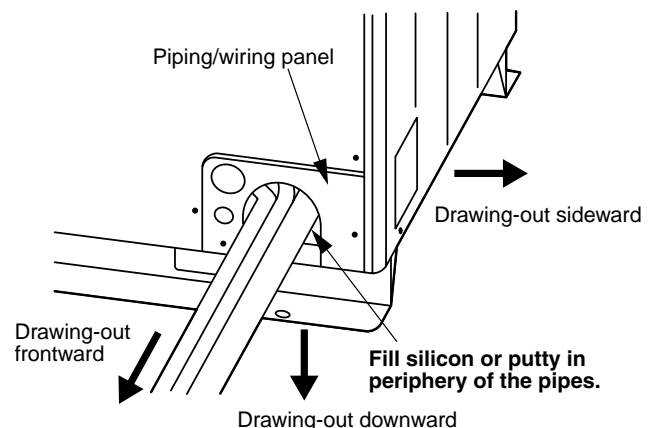
### CAUTION

- After piping connection work has finished, cover the opening of the piping/wiring panel with the piping cover, or fill silicon or putty in space of the pipes.
- In case of drawing-out the pipes downward or sideward direction, also close the openings of the base plate and the side plate.
- Under the opened condition, a trouble may be caused due to entering of water or dust.

#### In case of using pipe cover



#### In case of using no pipe cover



# 6 ELECTRIC WIRING



## WARNING

**Using the exclusive circuit, a person qualified for electrician shall work for the electric work in conformance with the regulations of the local electric company and the Installation Manual.**

If there is capacity shortage of the power circuit or incomplete electric work, a fire or electric shock is caused.

**For wiring, use the specified wires and connect them securely so that external force of wire does not transmit to the terminal connecting section.**

If connection or fixing is incomplete, a fire is caused.

**Be sure to connect the earth wire.**

Grounding work is necessary based upon a law. If the earth grounding is incomplete, an electric shock is caused.

Do not connect earth wire to gas pipe, lightning rod, or earth wire of telephone.



## CAUTION

**Be sure to attach an earth leakage breaker; otherwise an electric shock may be caused.**

**To Disconnect the Appliance from Main Power Supply.**

This appliance must be connected to the main power supply by means of a switch with a contact separation of at least 3 mm.

## REQUIREMENT

- Perform wiring of the power supply in conformance with the regulations of the local electric company.
  - For wiring of power supply in the indoor unit, refer to the Installation Manual of each indoor unit.
  - Never connect the 220–240V power to the terminal block (U1, U2, U3, U4, U5, U6) for control wires. (Trouble is caused.)
  - Arrange the wires so that the electric wires do not come to contact with high-temperature part of the pipe; otherwise coating melts and an accident may be caused.
  - After connecting wire to the terminal block, take off the trap and then fix the cable with wire clamp.
  - Store wiring system for control and refrigerant piping system in the same line.
  - Do not turn on power of the indoor unit until vacuuming of the refrigerant pipe will finish.
- 
- For wiring of the power supply of the indoor unit and the inter-unit cabling between indoor and outdoor units, refer to the Installation Manual of indoor unit.

## 6 ELECTRIC WIRING

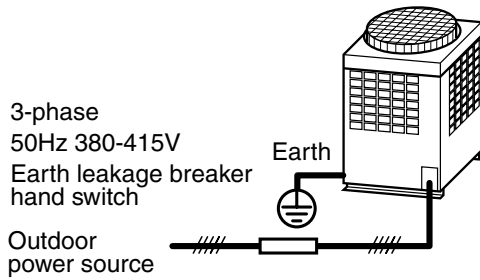
### Power supply specifications

#### • Power supply specifications of outdoor unit

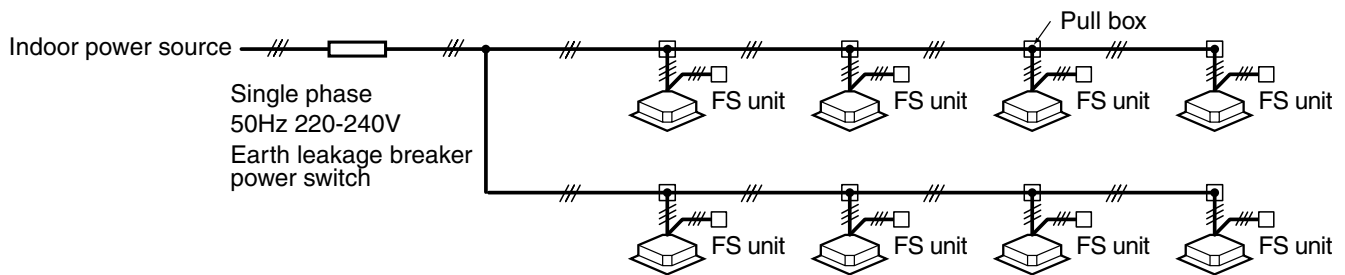
Select the power supply cabling and fuse of outdoor unit from the following specifications:

wire 5-core, in conformance with Design 60245 IEC 66

### Electrical wiring design



#### • Power supply specifications of indoor unit



#### • Unit capacities and power supply wire sizes (Reference)

Model	Power supply wiring	
	Wire size	Field fuse
MMY-MAP0801FT8	3.5 mm <sup>2</sup> (AWG #12) Max. 20 m	30 A
MMY-MAP1001FT8	5.5 mm <sup>2</sup> (AWG #10) Max. 28 m	30 A
MMY-MAP1201FT8	5.5 mm <sup>2</sup> (AWG #10) Max. 27 m	30 A

- Determine the wire size for indoor unit according to the number of connected indoor units downstream.
- Observe local regulation regarding wire size selection and installation.

## Design of control wiring

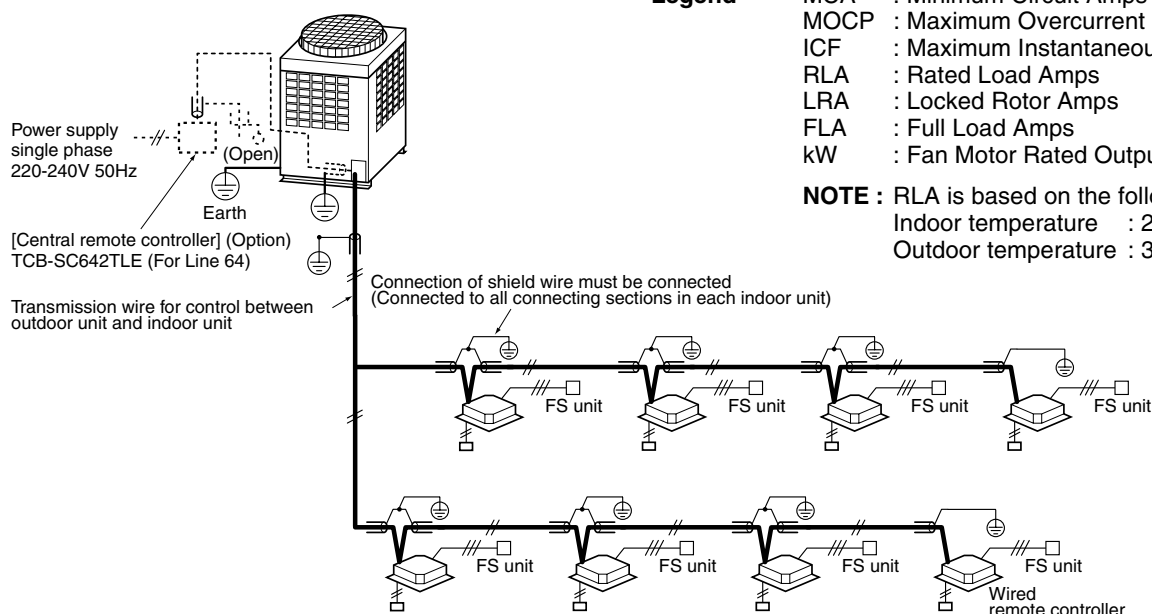
### ■ Outdoor unit

Model name MMY-	Nominal voltage (V-Ph-Hz)	Voltage range		Compressor		Fan Motor		Power Supply		
		Min.	Max.	RLA	LRA	kW	FLA	MCA	MOCP	ICF
MAP0801FT8	400-3-50	342	457	5.2 + 5.2	—	0.60	1.0	20.0	30	—
MAP1001FT8	400-3-50	342	457	6.5 + 6.5	—	0.60	1.1	22.5	30	—
MAP1201FT8	400-3-50	342	457	9.5 + 9.5	—	0.60	1.1	24.5	30	—

#### Legend

MCA : Minimum Circuit Amps  
 MOCP : Maximum Overcurrent Protection (Amps)  
 ICF : Maximum Instantaneous Current Flow Start  
 RLA : Rated Load Amps  
 LRA : Locked Rotor Amps  
 FLA : Full Load Amps  
 kW : Fan Motor Rated Output (kW)

**NOTE :** RLA is based on the following conditions.  
 Indoor temperature : 27°C DB/19°C WB  
 Outdoor temperature : 35°C DB



- Wire specification, quantity, size of crossover wiring and remote controller wiring

Name	Q'ty	Size			Specification
		Up to 500m	Up to 1000m	1000 to 2000m	
Crossover wiring (indoor-indoor / indoor-outdoor / outdoor-indoor control wiring, central control wiring)	2 cores	1.25mm <sup>2</sup>		2.0mm <sup>2</sup>	Shield wire
Remote controller wiring	2 cores	0.5 to 2.0mm <sup>2</sup>	—	—	—
Indoor unit - FS unit control wiring	Use the transmission wire (6m) attached to FS unit. If the indoor unit is placed 5m or more apart from the FS unit, use the connecting wire (RBC-CBK15FE (16m)) sold separately.				

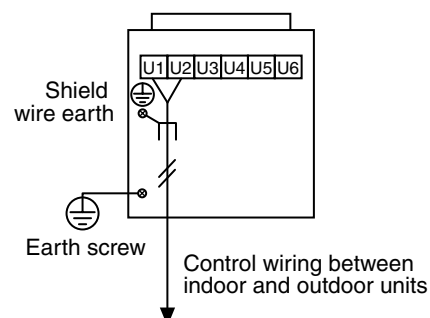
- (1) The crossover wiring and central control wiring use 2-core non-polarity transmission wires. Use 2-core shield wires to prevent noise trouble. In this case, close (connect) the end of shield wires, and perform the functional grounding for the end of the shield wires which are connected to both indoor and outdoor units.

For the shield wires which are connected between the central remote controller and the outdoor unit, perform the functional grounding at only one end of central control wiring.

- (2) Use 2-core and non-polarity wire for remote controller. (A, B terminals)  
Use 2-core and non-polarity wire for wiring of group control. (A, B terminals)

### • Specifications of wires for controlling

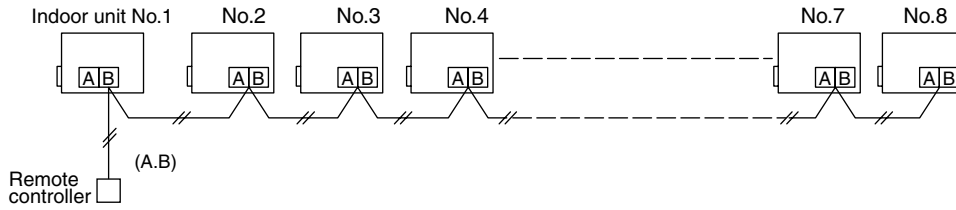
1. Connect each wire for controlling as shown below.



## 6 ELECTRIC WIRING

### • Group Control through a Remote Controller

Group control of multiple indoor units (8 units) through a single remote controller

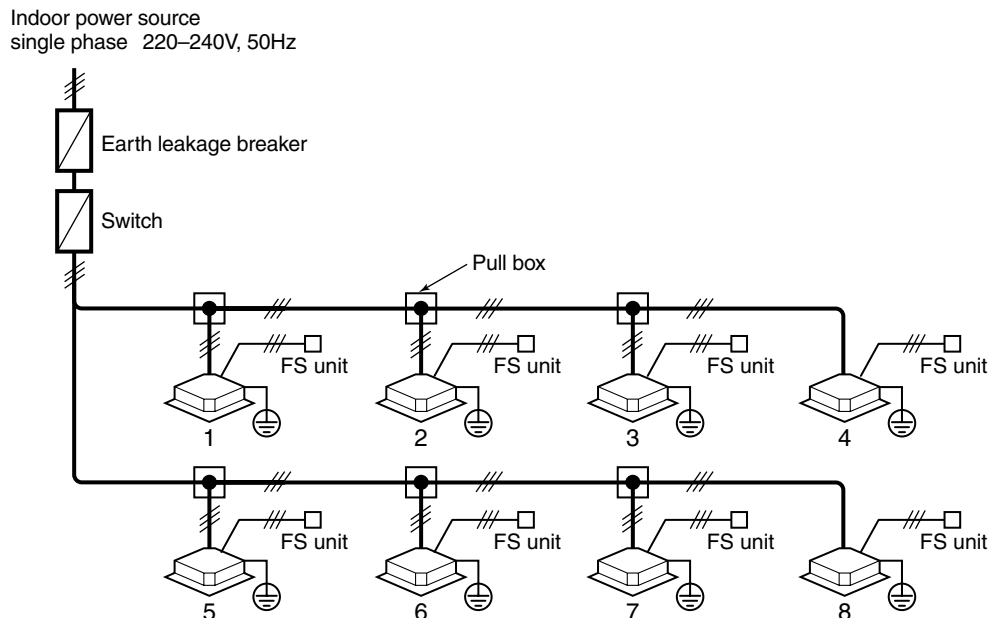


### For Indoor unit power supply (The outdoor unit has a separate power supply.)

Model	Item	Power supply wiring	
		Wire size	
All models of indoor units		2.0 mm <sup>2</sup> (AWG#14) Max. 20m	3.5 mm <sup>2</sup> (AWG#12) Max. 50m
Indoor unit - FS unit power supply wiring		Use the communication wire (6m) attached to FS unit. If the indoor unit is placed 5m or more apart from the FS unit, use the connecting wire (RBC-CBK15FE (16m)) sold separately	

### NOTE :

The connecting length indicated in the table represents the length from the pull box to the outdoor unit when the indoor units are connected in parallel for power, as shown in the illustration below. A voltage drop of no more than 2% is also assumed. If the connecting length will exceed the length indicated in the table, select the wire thickness in accordance with indoor wiring standards.

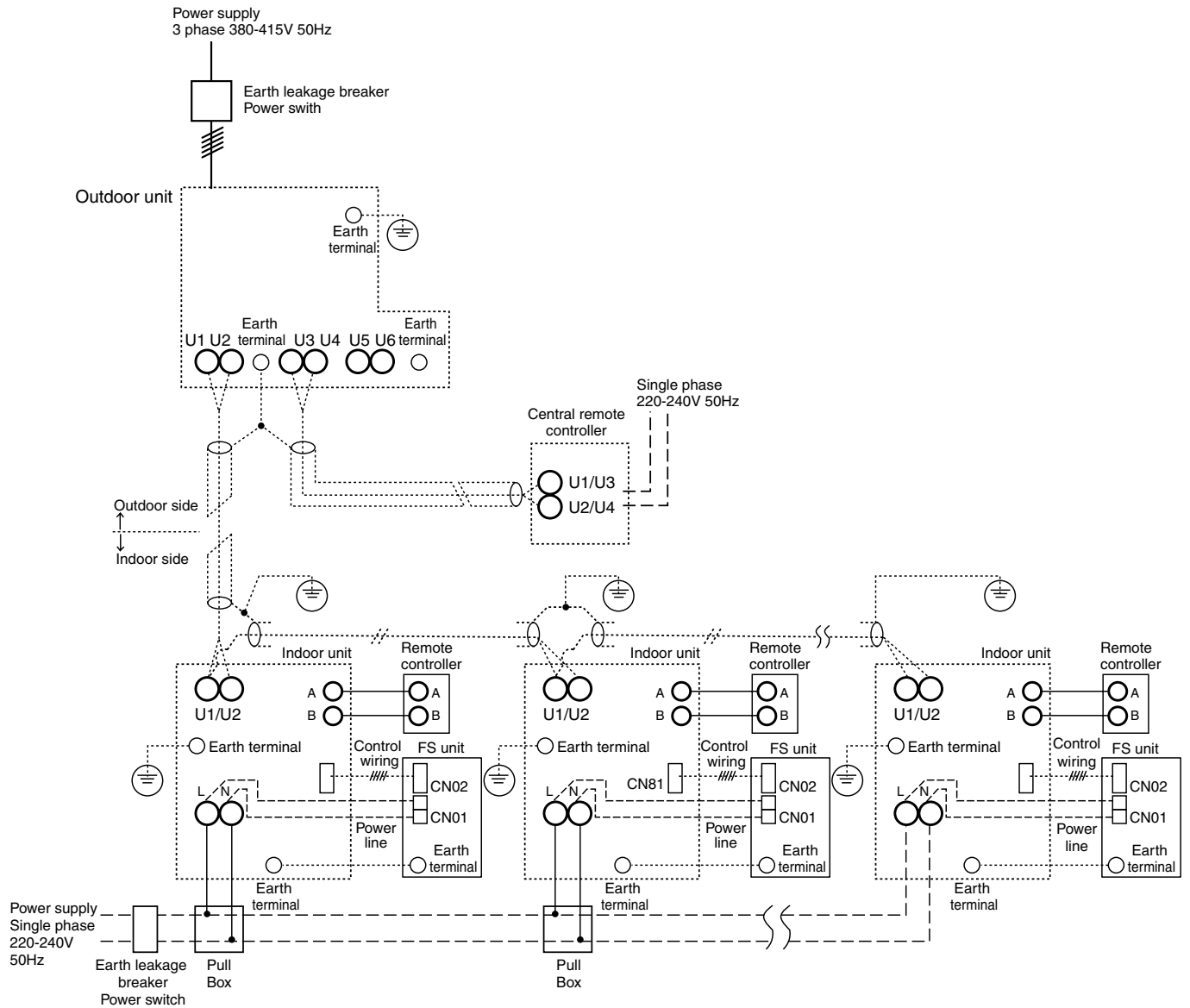


### CAUTION

- (1) Keep the refrigerant piping system and the indoor-indoor/indoor-outdoor control wiring systems together.
- (2) When running power wires and control wires parallel to each other, either run them through separate conduits, or maintain a suitable distance between them.  
(Current capacity of power wires: 10A or less for 300mm, 50A or less for 500mm)



## ■ System wiring diagram



### NOTE :

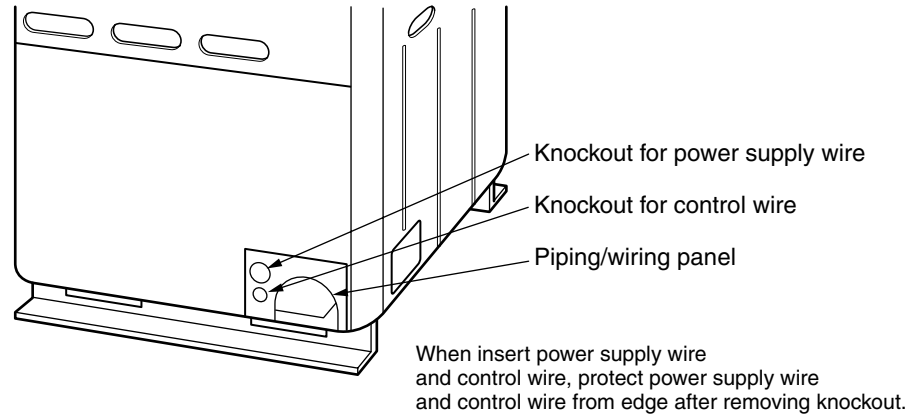
Control wire and power wire between FS unit and indoor unit are the accessory parts of FS unit.  
(Wire length : 6m)

If the length between indoor and FS unit exceeds 5m, connect by using the connection cable kit sold separately (RBC-CBK15FE).

## 6 ELECTRIC WIRING

### Connection of power supply wire with control wire

Insert power supply wire and control wire after removing knockout of the piping/wiring panel at front side of the outdoor unit.



#### ■ Power supply wire

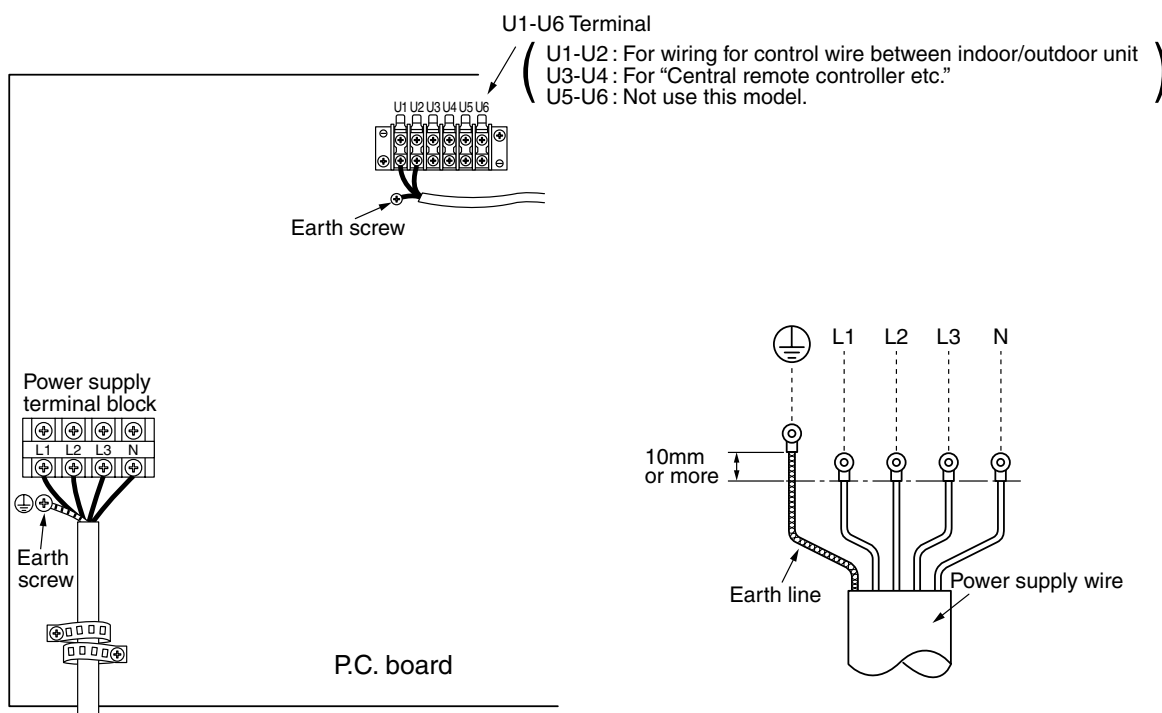
1. Connect the power supply wires and earthing wire to the terminal block of the power supply through a notched section at side of the electric parts box, and fix with a clamp.
2. Bundle the power supply wires using the hole so that they are not out of the notched section of the electric parts box.

#### ■ Control wire

1. Connect the control wire between indoor and outdoor units and the control wire between outdoor units to (U1 to U4) terminal section through a hole at side of the electric parts box, and fix with a clamp.
2. Use the control wire with 2-core shield wire (1.25mm<sup>2</sup> or more) in order to prevent noise trouble. (Non-polarity)

#### NOTE :

- 1) Be sure to separate the power supply wires and each control wire.
- 2) Arrange the power supply wires and each control wire so that they do not contact with the bottom surface of the outdoor unit.
- 3) A terminal block (U3, U4 terminal blocks) for connecting an optional part "Central remote controller etc." is provided on the inverter unit, so be careful to miswiring.



# 7 Outdoor Unit / INSTALLATION MANUAL [ VOLUME-2 ]

## ADDRESS SETUP

In this air conditioner, it is necessary to set up the indoor address before starting the operation. Set up the address in the following procedure.

### CAUTION

1. Set up address after wiring work.
  2. Be sure to turn on the power in order of indoor unit → outdoor unit. If turning on the power in the reverse order, a check code [E19] is output. When a check code is output, turn on the power again.
  3. It requires maximum 10 minutes (Usually, approx. 5 minutes) to set up automatically an address to 1 system.
  4. To set up an address automatically, the setup at outdoor side is necessary.  
(Address setup cannot be performed by power-ON only.)
  5. To set up an address, it is unnecessary to operate the air conditioner.
  6. Manual address setup is also available besides automatic setup.  
Automatic address : Setup from SW15 on the interface P.C. board of the outdoor unit  
Manual address : Setup from the wired remote controller
- \* It is temporarily necessary to set the indoor unit and wired to 1 : 1.  
(In group operation and in time without remote controller)

### Automatic Address Setup

Without central control : To the address setup procedure 1

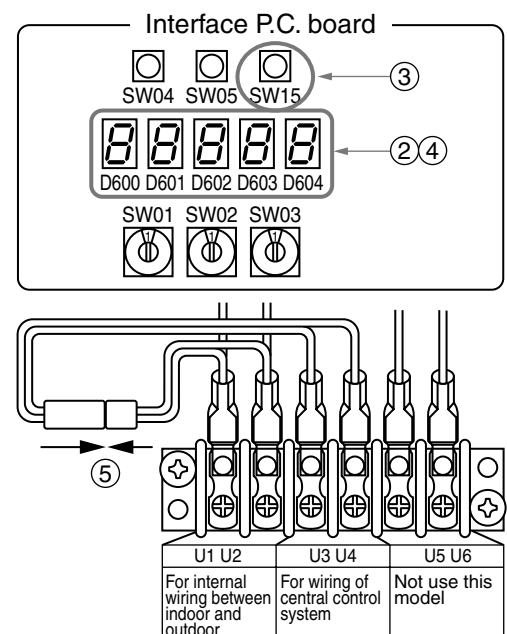
With central control : To the address setup procedure 2

(However, go to the procedure 1 when the central control is performed in a single refrigerant line.)

(Example)	In case of central control in a single refrigerant line	In case of central control over refrigerant lines
Address setup procedure	To procedure 1	To procedure 2
Wire systematic diagram		

### Address setup procedure 1

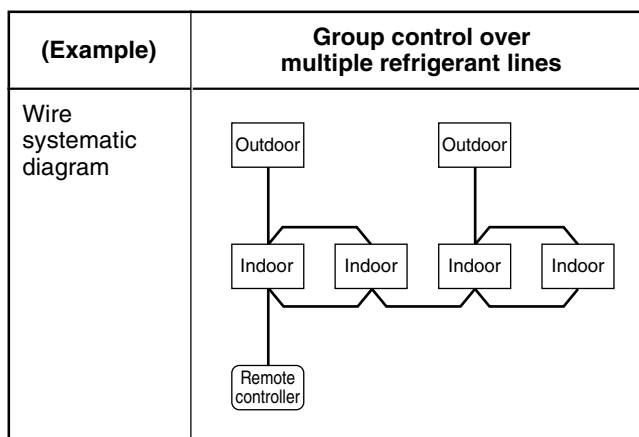
- ① Turn on power of indoor/outdoor units.  
(In order of indoor → Outdoor)
- ② After approx. 1 minute, check that **U. 1. L08 (U. 1. flash)** is displayed in 7-segment display section on the interface P.C. board of the outdoor unit.
- ③ **Push SW15 and start setup the automatic address.**  
(Max. 10 minutes for 1 line (Usually, approx. 5 minutes))
- ④ When the count **Auto 1 → Auto 2 → Auto 3** is displayed in 7-segment display section, and it changes from **U. 1. --- (U. 1. flash)** to **U. 1. --- (U. 1. light)**, the setup finished.
- ⑤ **When perform a central control, connect a relay connector between [U1U2] of the outdoor unit and [U3U4] terminals.**



## 7 ADDRESS SETUP

### REQUIREMENT

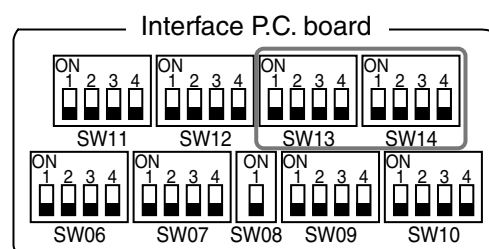
- When a group control is performed over the multiple refrigerant systems, be sure to turn on the power supplies of all the indoor units connected in a group in the time of address setup.
- If turning on the power for each refrigerant system to set up address, a header indoor unit is set for each system. Therefore, an alarm code "L03" (Duplicated header indoor units) is output in operation after address setup. In this case, change the group address from the wired remote controller so that only one header indoor unit is set up.



### Address setup procedure 2

- Using SW13 and 14 on the interface P.C. board of the outdoor unit in each line, set up the line address for each line.  
(At shipment from factory: Set to Address 1)

Note) Be careful not to duplicate with other refrigerant system or other line address.



### Line address switch on outdoor interface P.C. board

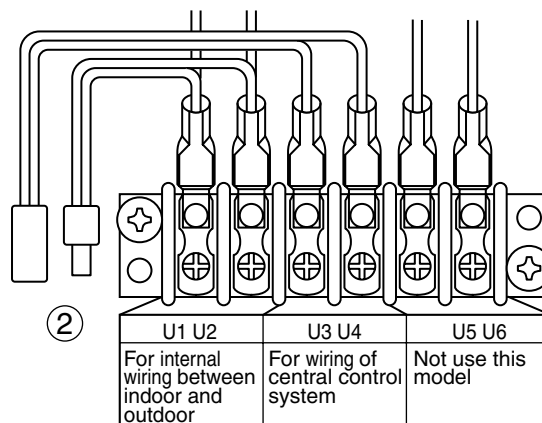
(○: Switch ON, ×: Switch OFF)

Line address	SW13				SW14			
	1	2	3	4	1	2	3	4
1				×	×	×	×	×
2				×	○	×	×	×
3				×	×	○	×	×
4				×	○	○	×	×
5				×	×	×	○	×
6				×	○	×	○	×
7				×	×	○	○	×
8				×	○	○	○	×
9				×	×	×	×	○
10				×	○	×	×	○
11				×	×	○	×	○
12				×	○	○	×	○
13				×	×	×	○	○
14				×	○	×	○	○

Line address	SW13				SW14			
	1	2	3	4	1	2	3	4
15				×	×	○	○	○
16				×	○	○	○	○
17				○	×	×	×	×
18				○	○	×	×	×
19				○	×	○	×	×
20				○	○	○	×	×
21				○	×	×	○	×
22				○	○	×	○	×
23				○	×	○	○	×
24				○	○	○	○	×
25				○	×	×	×	○
26				○	○	×	×	○
27				○	×	○	×	○
28				○	○	○	×	○

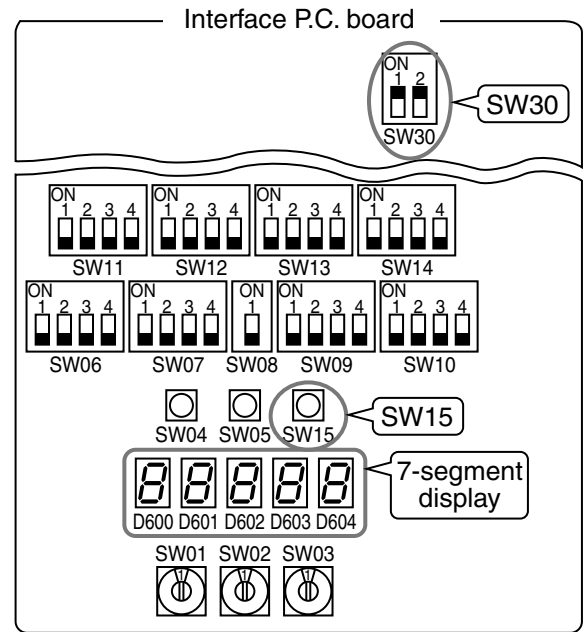
: Is not used for setup of line address. (Do not change setup.)

- Check that the relay connectors between [U1U2] and [U3U4] terminals are come out in all outdoor units to which the central control is connected. (At shipment from factory: No connection of connector)
- Turn on power of indoor/outdoor.  
(In order of indoor → outdoor)
- After approx. 1 minute, check that 7-segment display is **U.1.L08 (U.1. flash)** on the interface P.C. board.
- Push SW15 and start setup the automatic address.**  
(Max. 10 minutes for 1 line (Usually, approx. 5 minutes))
- When the count **Auto 1 → Auto 2 → Auto 3** is displayed in 7-segment display section, and it changes from **U. 1. - - - (U. 1. flash)** to **U. 1. - - - (U. 1. light)**, the setup finished.
- Procedure ④ to ⑥ are repeated in other refrigerant systems.



# Outdoor Unit / INSTALLATION MANUAL [ VOLUME-2 ]

- ⑧ When address setup has finished in all the systems, turn off SW30-2 on the interface P.C. boards of the lines connected to the identical central control except a line with least line address number.  
(Terminator resistors of the wires in the central control line of indoor/outdoor are unified.)
- ⑨ Connect the relay connector between [U1U2] and [U3U4] terminals of the outdoor unit for each refrigerant line.
- ⑩ Then set up the central control address.  
(For the central control address setup, refer to the Installation manual of the central control devices.)



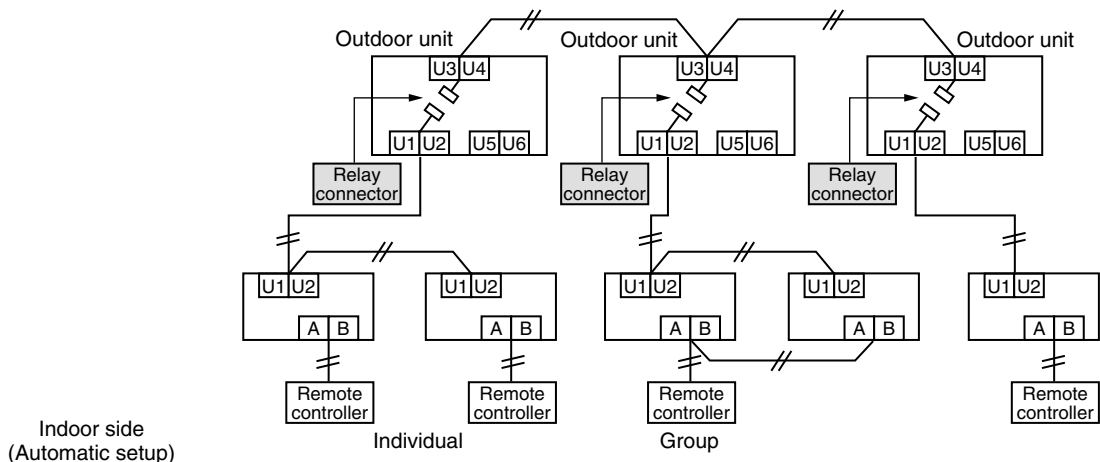
## Switch setup

(Example in case of central control over refrigerant lines)

## Outdoor side (Manual setup)

\* Manual setup is necessary for column of which letter color is reversed.

Outdoor interface P.C. board	Outdoor unit	Outdoor unit	Outdoor unit	Setup at shipment from factory
SW13, 14 (Line address)	1	2	3	1
SW30-2 (Terminator resistor of indoor/outdoor communication line/central control communication line)	ON	OFF after address setup	OFF after address setup	ON
Relay connector	Short after address setup	Short after address setup	Short after address setup	Open



Line address	1	1	2	2	3
Indoor unit address	1	2	1	2	1
Group address	0	0	1	2	0

## CAUTION

For relay connector

Never connect a relay connector until address setup for all the refrigerant systems finishes; otherwise address cannot be correctly set up.

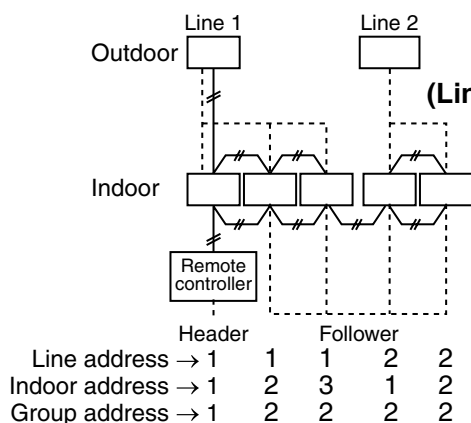
## 7 ADDRESS SETUP

### Manual address setup from remote controller

In case to decide an address of the indoor unit prior to finish of indoor electric wiring work and unpracticed outdoor electric wiring work (Manual setup from wired remote controller)

Arrange indoor unit in which address is set up and the wired remote controller to 1 : 1.

(Wiring example in 2 lines)



(Line address) →

(Indoor address) →

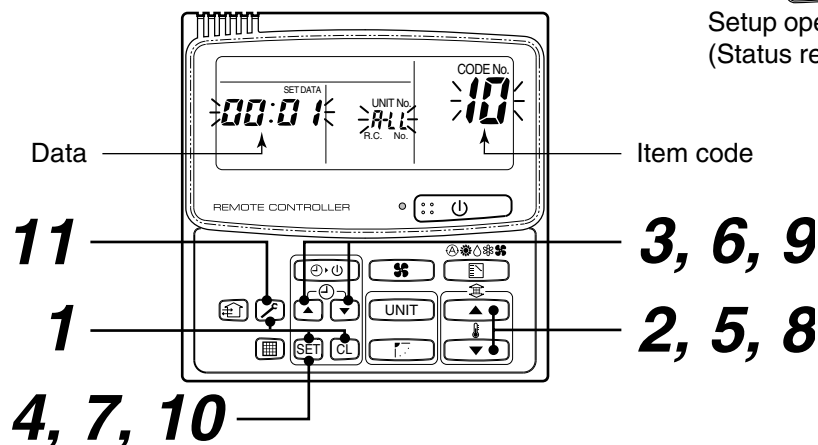
In the above example, under condition of no inter-unit wire of the wired remote controller, set the address after individual connecting of the wired remote controller.

### Group address

Individual : 0000  
Header unit : 0001  
Follower unit : 0002 } In case of group control

### Operation procedure

1 → 2 → 3 → 4 → 5 → 6 →  
7 → 8 → 9 → 10 → 11 End



Turn on the power.

1 Push simultaneously **SET** + **CL** + buttons for 4 seconds or more.

LCD changes to flashing.

2 Using the setup temp. / buttons, set **12** to the item code.

3 Using the timer time / buttons, set up the line address.

(Match it with the line address on the interface P.C. board of the outdoor unit in the identical refrigerant system.)

4 Push **SET** button.

(OK when display goes on.)

5 Using the setup temp. / buttons, set **13** to the item code.

6 Using the timer time / buttons, set up the indoor address.

7 Push **SET** button.

(OK when display goes on.)

(Group address) → 8 Using the setup temp. / buttons, set **14** to the item code.

9 Using the timer time / buttons, set Individual = 0000, Header unit = 0001, Follower unit = 0002.

10 Push **SET** button.  
(OK when display goes on.)

11 Push button.  
Setup operation finished.  
(Status returns to normal stop status.)

## Note 1)

When setting the line address from the wired remote controller, do not use address **29** and **30**.

The address **29** and **30** cannot be set up in the outdoor unit. Therefore if they are incorrectly set up, a check code **[E04]** (Indoor/outdoor communication circuit error) is output.

## Note 2)

When manual address has been set up from the wired remote controller, set up the following items for outdoor unit of each line if performing a central control over refrigerant systems.

- Using SW13 and 14 on the interface P.C. board of the outdoor unit in each line, set up the line address for each line.
- Turn off SW30-2 on the interface P.C. boards of the outdoor units of the lines connected to the identical central control except a line with least line address number.  
(The terminal resistances of the wires in the central control line of indoor/outdoor are unified.)
- Connect the relay connector between [U1U2] and [U3U4] of the outdoor unit for each refrigerant line.
- Then set up the central control address.  
(For the central control address setup, refer to the Installation manual of the central control devices.)

## Confirmation of indoor address and the indoor unit position on the remote controller

### [Confirmation of indoor unit No. and position]


#### 1. When you want to know the indoor address though position of the indoor unit itself can be recognized;

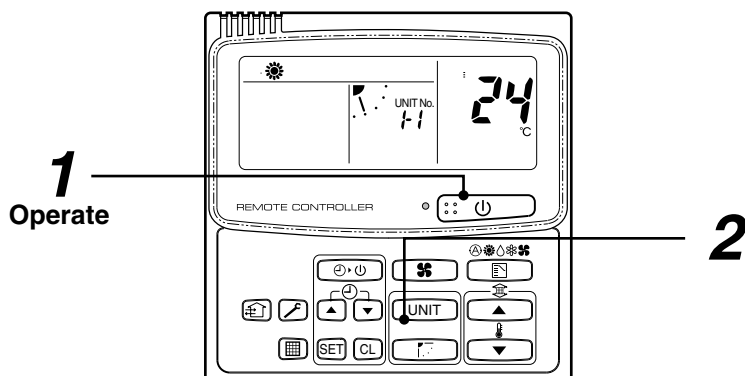
- In case of individual operation (Wired remote controller : Indoor unit = 1 : 1) or group control

<Procedure> (Operation while the air conditioner operates)

**1** If it stops, push  button.

**2** Push  button.

The unit NO **1-1** is displayed on the LCD. (Disappears after several seconds) The displayed unit No indicates the line address and indoor address. (If there is other indoor unit connected to the same remote controller (Group control unit), other unit No is displayed every pushing  button.)



### Operation procedure

**1 → 2**

## 7 ADDRESS SETUP

### 2. When you want to know position of the indoor unit using the address

- To confirm the unit numbers in a group control;

<Procedure> (Operation while the air conditioner stops)

The indoor unit numbers in a group control are successively displayed, and the corresponding indoor fan is turned on.

#### 1 Push + buttons simultaneously for 4 seconds or more.

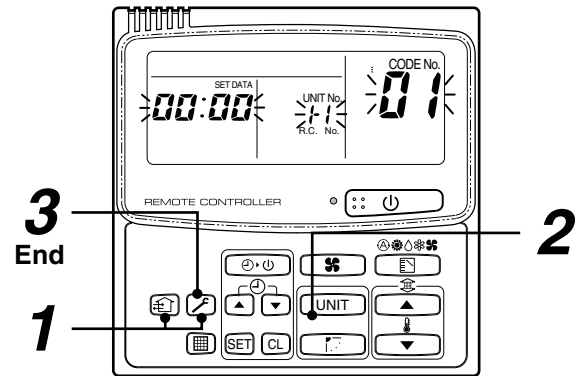
- Unit No *ALL* is displayed.
- The fans of all the indoor units in a group control are turned on.

#### 2 Every pushing button, the indoor unit numbers in the group control are successively displayed.

- The firstly displayed unit No. on number indicates the address of the header unit.
- Only fan of the selected indoor unit is turned on.

#### 3 Push button to finish the procedure.

All the indoor units in group control stop.



Operation procedure

1 → 2 → 3 End

- To confirm all the unit No. from an arbitrary wired remote controller;

<Procedure> (Operation while the air conditioner stops)

The indoor unit No. and position in the same refrigerant line can be confirmed. An outdoor unit is selected, the indoor unit No. in the same refrigerant system are successively displayed, and then its indoor unit fan is turned on.

#### 1 Push the timer time + buttons simultaneously for 4 seconds or more.

Firstly, the line 1, item code *AL* (Address Change) is displayed. (Select outdoor unit.)

#### 2 Using + buttons, select the line address.

#### 3 Using button, determine the selected line address.

- The indoor address, which is connected to the refrigerant system of the selected outdoor unit is displayed and the fan is turned on.

#### 4 Every pushing button, the indoor unit numbers in the same refrigerant system are successively displayed.

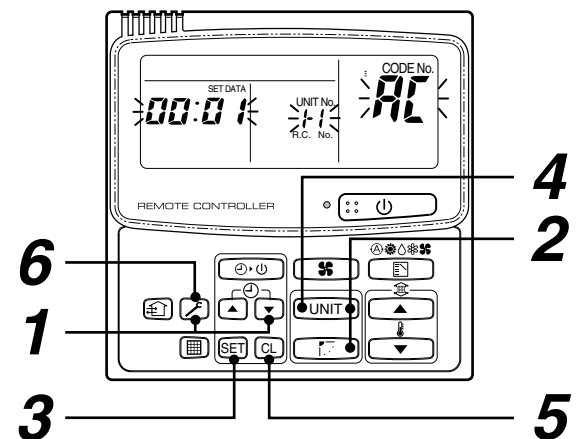
- Only fan of the selected indoor unit operates.

[To select another line address]

#### 5 Push button to return to procedure 2.

- The indoor address of another line can be successively confirmed.

#### 6 Push button to finish the procedure.



Operation procedure







1 → 2 → 3 →  
4 → 5 → 6 End

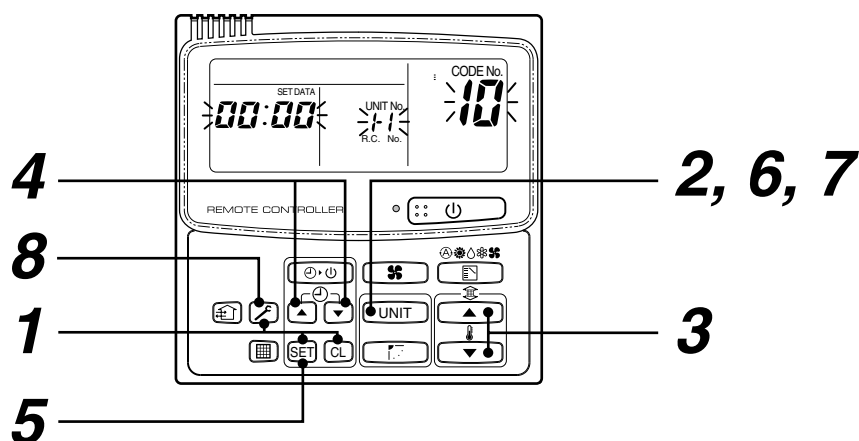


## Change of indoor address from wired remote controller

- To change the indoor address in individual operation (Wired remote controller : Indoor unit = 1 : 1) or group control (When the setup operation with automatic address has finished, this change is available.)

<Procedure> (Operation while air conditioner stops)

- 1** Push simultaneously **SET** + **CL** +  buttons for 4 seconds or more.  
(The firstly displayed unit No. indicates the header indoor unit in group control.)
- 2** In group control, select an indoor unit No. to be changed by **UNIT** button.  
(The fan of the selected indoor unit is turned on.)
- 3** Using the setup temp.  /  buttons, set **13** to the item code.
- 4** Using the timer time  /  buttons, change the displayed setup data to a data which you want to change.
- 5** Push **SET** button.
- 6** Using the **UNIT** button, select the unit No. to be changed at the next time.  
Repeat the procedure **4** to **6** and change the indoor address so that it is not duplicated.
- 7** After the above change, push **UNIT** button to confirm the changed contents.
- 8** If it is acceptable, push  button to finish confirmation.



Operation procedure

**1 → 2 → 3 → 4 → 5 → 6 → 7 → 8 End**

## 7 ADDRESS SETUP

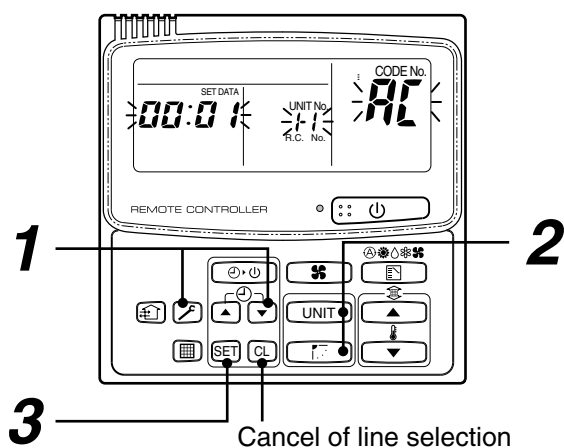
- To change all the indoor addresses from an arbitrary wired remote controller;  
(When the setup operation with automatic address has finished, this change is available.)

**Contents :** Using an arbitrary wired remote controller, the indoor unit address can be changed for each same refrigerant system.

- \* Change the address in the address check/change mode.

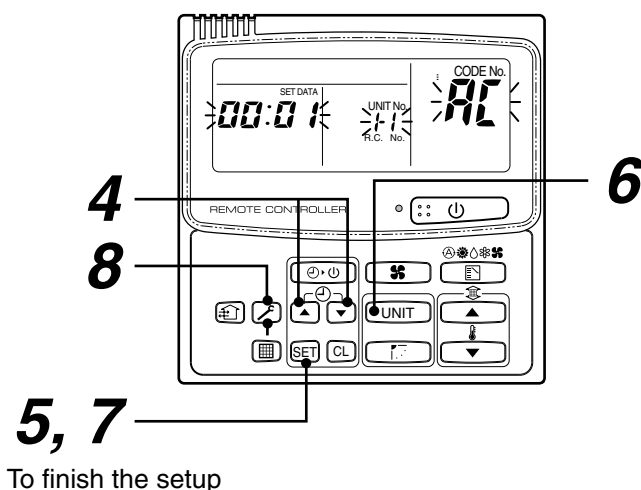
<Procedure> (Operation while air conditioner stops)

- 1** Push the timer time + buttons simultaneously for 4 seconds or more.  
Firstly, the line 1, item code **AL** (Address Change) is displayed.
- 2** Using + buttons, select the line address.
- 3** Push button.
  - The indoor address, which is connected to the refrigerant line of the selected outdoor unit is displayed and the fan is turned on.
 First the current indoor address is displayed on the setup data. (Line address is not displayed.)
- 4** The indoor address of the setup data moves up/down by the timer time / buttons.  
Change the setup data to a new address.
- 5** Push button to determine the setup data.
- 6** Every pushing button, the indoor unit numbers in the same refrigerant line are successively displayed. Only fan of the selected indoor unit operates.  
Repeat the procedure **4** to **6** and change all the indoor addresses so that they are not duplicated.
- 7** Push button.  
(All the displays on LCD go on.)
- 8** Push button to finish the procedure.



Here, if the unit No. is not called up, the outdoor unit in this system does not exist.

Push button, and then select a line according to procedure **2**.



To finish the setup

**Operation procedure**  
**1 → 2 → 3 → 4 → 5 → 6 → 7 → 8 End**

## Clearance of address (Return to status (Address undecided) at shipment from factory)

### Method 1

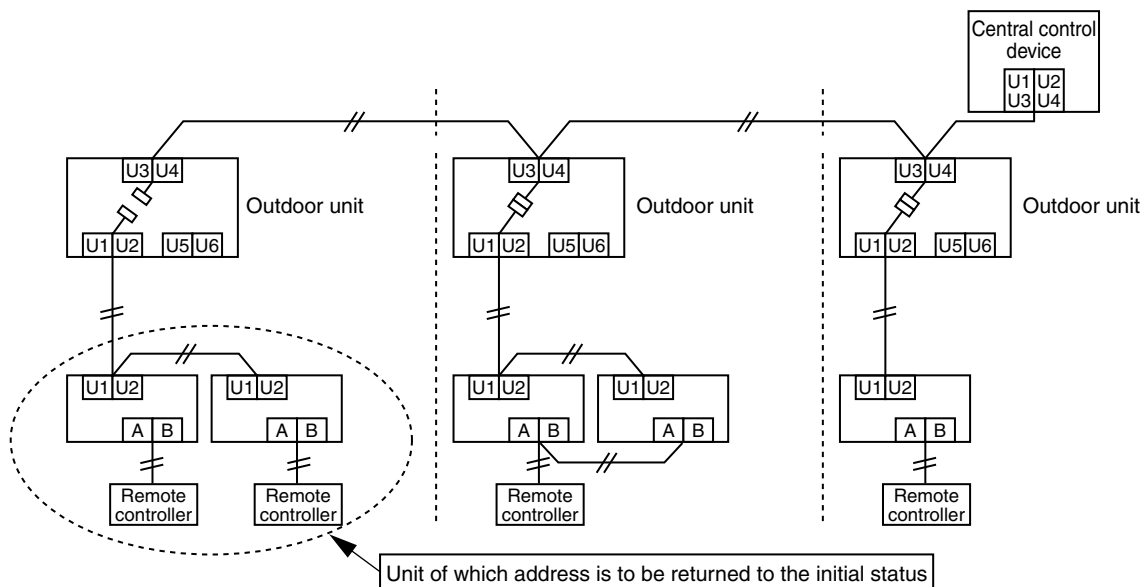
An address is individually cleared from a wired remote controller.

“0099” is set up to line address, indoor address, and group address data from the wired remote controller.  
(For the setup procedure, refer to the above-mentioned address setup from the wired remote controller.)

### Method 2

Clear the indoor addresses in the same refrigerant line from the outdoor unit.

1. Turn off the power of the refrigerant system to be returned to the status at shipment from factory, and change the outdoor unit to the following status.
  - 1) Remove the relay connector between [U1U2] and [U3U4].  
(If it has been already removed, leave it as it is.)
  - 2) Turn on SW30-2 on the interface P.C. board of the outdoor unit if it is ON.  
(If it has been already ON, leave it as it is.)



2. Turn on the indoor/outdoor power of which address is to be cleared. After approx. 1 minute, check that “U.1. - - -” is displayed, and then execute the following operation on the interface P.C. board of the outdoor unit of which address is to be cleared in the refrigerant system.

SW01	SW02	SW03	SW04	Address which can be cleared
2	1	2	After checking that “A.d.buS” is displayed on 7-degmet display, and then push SW04 for 5 seconds or more.	Line + Indoor + Group address
2	2	2	After checking that “A.d.nEt” is displayed on 7-degmet display, and then push SW04 for 5 seconds or more.	Central address

3. After “A.d. c.L.” has been displayed on 7-degmet display, return SW01/SW02/SW03 to 1/1/1.
4. When the address clearing has correctly finished, “U.1.L08” is displayed on 7-degmet display after a while.  
If “A.d. n.G.” is displayed on 7-degmet display, there is a possibility which is connected with the other refrigerant system. Check again the relay connector between [U1U2] and [U3U4] terminals.

**NOTE)** Be careful that the other refrigerant system address may be also cleared if clearing operation is not correctly executed.

5. After clearing of the address, set up an address again.

# 8 HOW TO SET UP THE COOLING ONLY INDOOR UNIT

When setting the specific indoor unit to Cooling Only unit without connecting to the flow selector unit, setup to the indoor unit to become the Cooling Only unit is necessary.

Perform setup in the following procedure.

Setup to the indoor unit is performed by handling the wired remote controller.

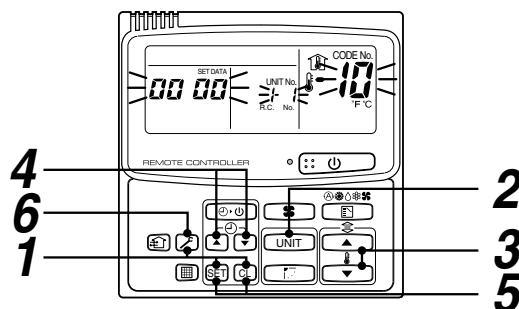
Even if a wired remote controller is not used, attach a wired remote controller for setup.

When using the air conditioner with a wireless remote controller, select "Cooling Only" of the wireless remote controller after the above setup.

For handling the wireless remote controller, refer to the manual attached to the wireless remote controller.

Change the setup during stop of the operation.

(Be sure to stop operation of the air conditioner.)



Procedure	Description						
1	<p>When pushing <b>[SET]</b> + <b>[CL]</b> + <b>[F]</b> buttons simultaneously for 4 seconds or more, after a while, the display part flashes as shown in the figure.</p> <p>Check that the displayed item code is [10].</p> <ul style="list-style-type: none"><li>If the item code indicates one other than [10], push <b>[F]</b> button to erase the display, and then retry the operation from the first step. (After pushing <b>[F]</b> button, the operation of remote controller cannot be accepted after a while.) (* The display changes according to the indoor unit model.)</li></ul>						
2	<p>In a group control, the firstly displayed indoor unit No. becomes the header unit.</p> <p>Every pushing [UNIT] button, the indoor unit No. in the group control is displayed successively. Select an indoor unit of which setup is to be changed.</p> <p>In this time, the position of the indoor unit of which setup is to be changed can be confirmed because the fan and flap of the selected indoor unit work.</p>						
3	Use <b>[▲]</b> and <b>[▼]</b> buttons of the set temperature to specify the item code [0F].						
4	<p>Use <b>[▲]</b> and <b>[▼]</b> buttons of the timer time to select the setup data [0001].</p> <table><tr><td>Setup data</td><td>0000</td><td>0001</td></tr><tr><td>Cooling Only setup</td><td>Heat pump</td><td>Cooling Only</td></tr></table>	Setup data	0000	0001	Cooling Only setup	Heat pump	Cooling Only
Setup data	0000	0001					
Cooling Only setup	Heat pump	Cooling Only					
5	<p>Push <b>[SET]</b> button. In this time, if the display changes from flashing to lighting, the setup completes.</p> <ul style="list-style-type: none"><li>To change the setup of an indoor unit other than the selected one, start operation from Procedure 2.</li><li>In a group control, setup change of all the indoor units in a group is necessary. To change the setup of the set other than the selected one, start again operation from Procedure 2.</li></ul> <p><b>CAUTION</b> Cooling Only and Heat pump cannot exist in the same group.</p> <ul style="list-style-type: none"><li>Pushing <b>[CL]</b> button clears the set up contents which have been already set.</li><li>In this case, retry from Procedure 2.</li></ul>						
6	<p>When the setup finished, push <b>[F]</b> button. (The setup is determined.)</p> <p>Pushing <b>[F]</b> button deletes the display and returns to normal stop status. (For some time after <b>[F]</b> button has been pushed, the operation of the remote controller cannot be accepted.)</p>						

# 9 TEST OPERATION

## Before test operation

Check valve of the refrigerant pipe of the outdoor unit is "OPEN".

- Using 500V-megger, check there is 1MΩ or more between the terminal block of the power supply and the earth.  
If the value is below 1MΩ, do not operate the air conditioner.

## WARNING

- Turn on the power and then turn on the case heater of the compressor.  
To protect the compressor at start time, keep power-ON before 12 hours or more.

## How to perform a test operation

In case of test operation on the wired remote controller

Check the operation of the air conditioner in usual operation by the wired remote controller.

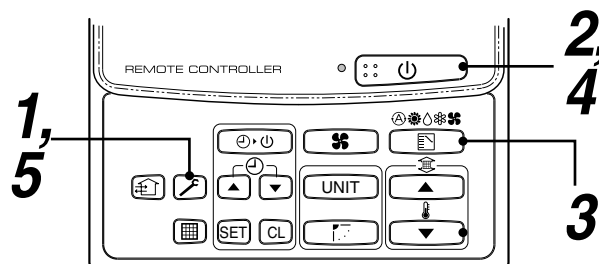
For the procedure of the operation, refer to the attached Owner's Manual.

For a case of using a wireless remote controller, refer to the Installation Manual of the indoor unit.


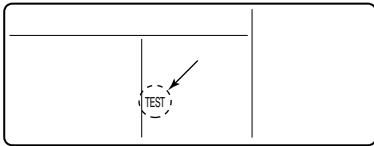
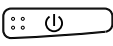

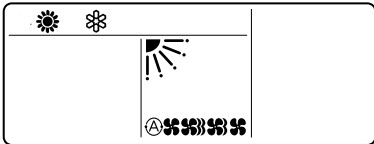
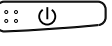


A forced test operation is available in the following procedure under condition that the thermostat-OFF in the room.

In a forced test operation, the test operation is cleared after operation for 60 minutes and then returns to the usual operation in order to prevent a serial operation.

**NOTE)** Do not use the forced test operation for cases other than the test operation because it applies an excessive load to the air conditioner.



## In case of wired remote controller

Procedure	Operation
<b>1</b>	When pushing  button for 4 seconds or more, [TEST] is displayed on the display part and the mode changes to test operation mode. ([TEST] is displayed on the display part during test operation.) 
<b>2</b>	Push  button.
<b>3</b>	Using  button, change the operation mode to [COOL] or [HEAT]. <ul style="list-style-type: none"> <li>Do not drive the air conditioner with a mode other than [COOL] or [HEAT].</li> <li>The temperature cannot be adjusted during test operation.</li> <li>An error is detected as usual.</li> </ul> 
<b>4</b>	After the test operation has finished, push  button to stop the operation. (Display is same to that in procedure <b>1</b> .)
<b>5</b>	Push  button to clear the test operation mode. ([TEST] in the display part disappears and the status changes to the usual stop status.) 

## 9 TEST OPERATION

### In case of test operation on the interface P.C. board of the outdoor unit

This air conditioner has a function which executes a test operation by operation of the switches on the interface P.C. board of the outdoor unit.

This function is classified into "Individual test operation" which performs a test operation individually in each indoor unit and "Collective test operation" which performs a test operation for all the connected indoor units.

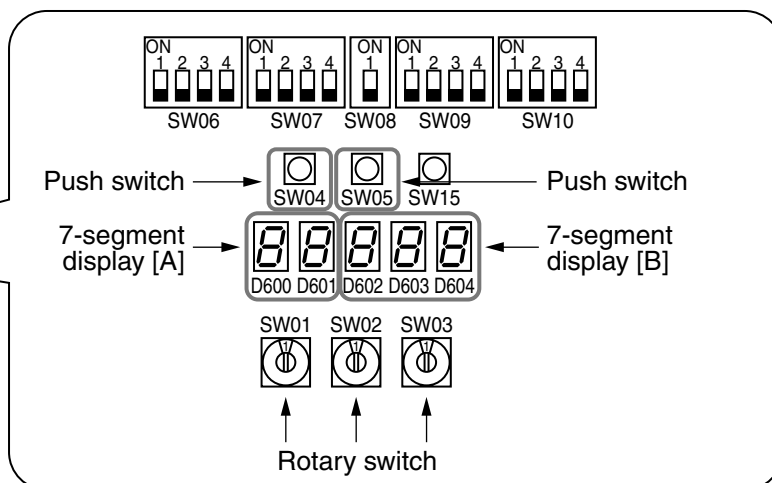
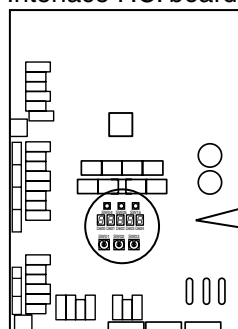
#### <Individual test operation>

	Procedure	Operation	7-segment display	
Start operation	1	Set operation mode on wired remote controller of the indoor unit which is operated with test mode to [COOL] or [HEAT]. (When it is not set up, operate the air conditioner with the current operation mode.)	[A] [U1]	[B] [ ] ]
	2	Set the rotary switch SW01 on the interface P.C. board of the outdoor unit to [16], and match SW02 and SW03 to the address of the indoor unit to be operated with test mode.	[A] [ ] ] ↓ Address display of the corresponding indoor unit	[B] [ ] ]
	3	Push SW04 for 10 seconds or more. • Operation mode changes to the operation mode of wired remote controller of the corresponding indoor unit. • Temperature cannot be adjusted during "Test operation". • Error is detected as usual. • Test operation is not performed 3 minutes after power was turned on or operation has stopped.	[A] [ ] ] ↓ Address display of the corresponding indoor unit	[B] [ ] ] ↓ [FF] is displayed for 5 seconds.
Stop operation	1	Return the rotary switches on the interface P.C. board of the outdoor unit, SW01 = [1], SW02 = [1], SW03 = [1].	[A] [U1]	[B] [ ] ]

#### <Collective test operation>

	Procedure	Operation	7-segment display	
Start operation	1	Set the rotary switches of interface P.C. board of the outdoor unit; All cooling operation: SW01 = [2], SW02 = [5], SW03 = [1] All heating operation: SW01 = [2], SW02 = [6], SW03 = [1]	[A] [C ] [H ]	[B] [ ] ] [ ] ]
	2	Push SW04 for 2 seconds or more. • Temperature cannot be adjusted during "Test operation". • Error is detected as usual. • Test operation is not performed 3 minutes after power was turned on or operation has stopped.	[A] [C ] [H ]	[B] [ -C ] [ -H ]
Stop operation	1	Return the rotary switches on the interface P.C. board of the outdoor unit, SW01 = [1], SW02 = [1], SW03 = [1].	[A] [U1]	[B] [ ] ]

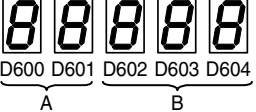
Interface P.C. board



# 10 TROUBLESHOOTING

In addition to the check code on the remote controller of the indoor unit, a trouble of the outdoor unit can be diagnosed by 7-segment display of the control P.C. board of the outdoor unit. Make good use of this function for various checks. After check, return each bit of Dip switch to OFF position.

## ■ Segment display and check code

Rotary switch setup value			Displayed contents	LED	
SW01	SW02	SW03			
1	1	1	Check code of outdoor unit	A	Outdoor unit No. (U1 only)
				B	Check code display*

\* However, when there is an auxiliary code, the check code (for 3 seconds) and the auxiliary code (for 1 second) are alternately displayed.

## Check Code (Outdoor 7-segment display [B])

Displayed when SW01: 1, SW02: 1, SW03: 1

Check code Outdoor 7-segment display	Auxiliary code	Check code name
E06	Number of indoor unit which received normally	Decrease of number of indoor units
E07	—	Indoor/Outdoor communication circuit error
E08	Duplicated indoor addresses	Duplication of indoor addresses
E12	01: Communication between indoor and outdoor 02: Communication between outdoor units	Automatic address start error
E15	—	Indoor is nothing during automatic addressing
E16	00: Capacity over 01~: No. of connected units	Capacity over / Number of connected indoor units
E19	00: Header is nothing 02: Two or more header units	Number of header outdoor units error
E20	01: Other line outdoor connected 02: Other line indoor connected	Other line connected during automatic addressing
E23	—	Sending error between outdoor units communication
E25	—	Duplicated follower outdoor address setup
E26	Number of outdoor unit which received normally	Decrease of connected outdoor units
E28	Detected outdoor unit No.	Follower outdoor unit error
E31	IPDU quantity information	IPDU communication error
F04	—	TD1 sensor error
F05	—	TD2 sensor error
F06	—	TE1 sensor error
F07	—	TL sensor error
F08	—	TO sensor error
F12	01: TS1 sensor error 02: TS2 sensor error	TS1, TS2 sensor error
F13	01: Compressor 1 side 02: Compressor 2 side	TH sensor error
F15	—	Outdoor temp. sensor miswiring (TE, TL)
F16	—	Outdoor pressure sensor miswiring (Pd, Ps)
F23	—	Ps sensor error
F24	—	Pd sensor error
F31	—	Outdoor EEPROM error










# 10 TROUBLESHOOTING

Check code Outdoor 7-segment display	Auxiliary code	Check code name
H01	01: Compressor 1 side 02: Compressor 2 side	Compressor breakdown
H02	01: Compressor 1 side 02: Compressor 2 side	Magnet switch error Overcurrent relay operation Compressor trouble (Lock)
H03	01: Compressor 1 side 02: Compressor 2 side	Current detective circuit system error
H04	—	Compressor 1 case thermo operation
H06	—	Low-pressure protective operation
H07	—	Oil level down detection protection
H08	01: TK1 sensor error 02: TK2 sensor error 03: TK3 sensor error 04: TK4 sensor error	Temp sensor error for oil level detection
H14	—	Compressor 2 case thermo operation
H16	01: TK1 oil circuit system error 02: TK2 oil circuit system error 03: TK3 oil circuit system error 04: TK4 oil circuit system error	Magnet switch error Overcurrent relay operation Oil level detective circuit system error
L04	—	Outdoor line address duplicated
L06	Number of indoor units with priority	Duplication of indoor units with priority
L08	—	Indoor group/Address unset
L10	—	Outdoor capacity unset
L18	Detected indoor address	Flow selector unit error
L28	—	Outdoor connected quantity over
L29	IPDU quantity information	IPDU quantity error
L30	Detected indoor address	External interlock of indoor unit
L31	—	Extended I/C error
P03	—	Discharge temp TD1 error
P04	01: Compressor 1 side 02: Compressor 2 side	High-pressure SW system operation
P05	01: Phase missing detection 02: Phase order error	Phase missing detection / Phase order error
P07	01: Compressor 1 side 02: Compressor 2 side	Heat sink overheat error
P10	Detected indoor address	Indoor overflow error
P13	—	Outdoor liquid back detection error
P15	01: TS condition 02: TD condition	Gas leak detection
P17	—	Discharge temp. TD2 error
P19	Detected outdoor unit number	4-way valve inverse error
P20	—	High-pressure protective operation
P22	0 *: IGBT short 1 *: Fan motor position detective circuit error 3 *: Fan motor lock trouble C *: TH sensor temp. error D *: TH sensor error	Outdoor fan IPDU error
P26	01: Compressor 1 side 02: Compressor 2 side	IGBT short protection error
P29	01: Compressor 1 side 02: Compressor 2 side	Compressor position detective circuit system error



# Accessory parts and Parts to be procured locally

## Accessory parts

Part name	Q'ty		Shape	Usage
	RBM-Y1121FE	RBM-Y1801FE		
Installation Manual	1	1	—	(Be sure to hand over to customers.)
Attached wire (For power supply)	1	1		For power supply from indoor unit (3-core, 6m)
Attached wire (For control wiring)	1	1		For communication with indoor unit (5-core, 6m)
Heat insulating pipe	3	3		For heat insulating of suction gas, discharge gas, and gas pipe connecting sections
Heat insulating pipe	2	2		For heat insulating of liquid pipe connecting sections
Attached pipe	2	—		Ø9.5 - Ø6.4 connection pipe
Attached pipe	2	—		Ø15.9 - Ø12.7 connection pipe
Attached pipe	1	—		Ø15.9 - Ø9.5 connection pipe
Attached pipe	1	—		Ø12.7 - Ø9.5 connection pipe
Wire joint	2	2		For connection with certain indoor units

# 1 PRECAUTIONS FOR SAFETY

- Ensure that all Local, National and International regulations are satisfied.
- Read this “PRECAUTIONS FOR SAFETY” carefully before Installation.
- The precautions described below include the important items regarding safety. Observe them without fail.
- After the installation work, perform a trial operation to check for any problem.  
Follow the Owner's Manual to explain how to use and maintain the unit to the customer.
- Turn off the main power supply switch (or breaker) before the unit maintenance.
- Ask the customer to keep the Installation Manual together with the Owner's Manual.

### CAUTION

#### New Refrigerant Air Conditioner Installation

- **THIS AIR CONDITIONER ADOPTS THE NEW HFC REFRIGERANT (R410A) WHICH DOES NOT DESTROY OZONE LAYER.**

The characteristics of R410A refrigerant are ; easy to absorb water, oxidizing membrane or oil, and its pressure is approx. 1.6 times higher than that of refrigerant R22. Accompanied with the new refrigerant, refrigerating oil has also been changed. Therefore, during installation work, be sure that water, dust, former refrigerant, or refrigerating oil does not enter the refrigerating cycle.

To prevent charging an incorrect refrigerant and refrigerating oil, the sizes of connecting sections of charging port of the main unit and installation tools are changed from those for the conventional refrigerant.

Accordingly the exclusive tools are required for the new refrigerant (R410A).

For connecting pipes, use new and clean piping designed for R410A, and please care so that water or dust does not enter. Moreover, do not use the existing piping because there are problems with pressure-resistance force and impurity in it.

### WARNING

- **Ask an authorized dealer or qualified installation professional to install/maintain the air conditioner.**  
Inappropriate installation may result in water leakage, electric shock or fire.
- **Turn off the main power supply switch or breaker before attempting any electrical work.**  
Make sure all power switches are off. Failure to do so may cause electric shock.
- **Connect the connecting wire correctly.**  
If the connecting wire is connected in a wrong way, electric parts may be damaged.
- **When moving the air conditioner for the installation into another place, be very careful not to enter any gaseous matter other than the specified refrigerant into the refrigeration cycle.**  
If air or any other gas is mixed in the refrigerant, the gas pressure in the refrigeration cycle becomes abnormally high and it resultingly causes pipe burst and injuries on persons.
- **Do not modify this unit by removing any of the safety guards or by by-passing any of the safety interlock switches.**
- **Exposure of unit to water or other moisture before installation may cause a short-circuit of electrical parts.**  
Do not store it in a wet basement or expose to rain or water.
- **After unpacking the unit, examine it carefully if there are possible damage.**
- **Do not install in a place that might increase the vibration of the unit.**
- **To avoid personal injury (with sharp edges), be careful when handling parts.**
- **Perform installation work properly according to the Installation Manual.**  
Inappropriate installation may result in water leakage, electric shock or fire.
- **When the air conditioner is installed in a small room, provide appropriate measures to ensure that the concentration of refrigerant leakage occur in the room does not exceed the critical level.**
- **Install the air conditioner securely in a location where the base can sustain the weight adequately.**
- **Perform the specified installation work to guard against an earthquake.**  
If the air conditioner is not installed appropriately, accidents may occur due to the falling unit.
- **If refrigerant gas has leaked during the installation work, ventilate the room immediately.**  
If the leaked refrigerant gas comes in contact with fire, noxious gas may generate.
- **After the installation work, confirm that refrigerant gas does not leak.**  
If refrigerant gas leaks into the room and flows near a fire source, such as a cooking range, noxious gas might generate.
- **Electrical work must be performed by a qualified electrician in accordance with the Installation Manual. Make sure the air conditioner uses an exclusive power supply.**  
An insufficient power supply capacity or inappropriate installation may cause fire.
- **Use the specified wires for wiring connect the terminals securely fix. To prevent external forces applied to the terminals from affecting the terminals.**
- **Conform to the regulations of the local electric company when wiring the power supply.**  
Inappropriate grounding may cause electric shock.
- **Do not install the air conditioner in a location subject to a risk of exposure to a combustible gas.**  
If a combustible gas leaks, and stays around the unit, a fire may occur.

### CAUTION

- **Tighten flare nuts using a torque wrench according to the specified method.**  
If the flare nuts are tightened too much, they may later break and cause a refrigerant leak.

# 2 INSTALLATION OF NEW REFRIGERANT AIR CONDITIONER

**This air conditioner adopts the new HFC refrigerant (R410A) which does not deplete the ozone layer.**

- R410A refrigerant is apt to be affected by impurity such as water, oxidizing membrane, or oils because the pressure of R410A refrigerant is higher than that of the former refrigerant by approx. 1.6 times. Accompanied with adoption of the new refrigerant, refrigerating oil has been also changed. Therefore pay attention so that water, dust, former refrigerant, or refrigerating oil does not enter into the refrigerating cycle of the new refrigerant air conditioner during installation work.
- To prevent from mixing of refrigerant or refrigerating oil, the size of charge port of the main unit or connecting section of installation tool differs from that of the air conditioner for the former refrigerant. Accordingly the exclusive tools are required for the new refrigerant (R410A) as shown below.
- For connecting pipes, use the new and clean piping materials so that water or dust does not enter.

## Required tools and cautions on handling

It is necessary to prepare the tools and parts as described below for the installation work.

The tools and parts which will be newly prepared in the following items should be restricted to the exclusive use.

## Explanation of symbols

- : Newly prepared (It is necessary to use it properly exclusive to R410A separated from those for R22 or R407C.)
- : Former tool is available.

Used tools	Usage	Proper use of tools/parts
Gauge manifold	Vacuuming or charging of refrigerant and operation check	● Newly prepared, Exclusive to R410A
Charging hose		● Newly prepared, Exclusive to R410A
Charging cylinder	Charges refrigerant	Unusable (Use the Refrigerant charging balance.)
Gas leak detector	Checks gas leak	● Newly prepared
Vacuum pump	Vacuum drying	Usable if a counter-flow preventive adapter is attached
Vacuum pump with counter-flow preventive adapter	Vacuum drying	○: R22 (Existing article)
Flare tool	Flare processing of pipes	○ : Usable by adjusting size
Bender	Bending processing of pipes	○ : R22 (Existing article)
Refrigerant recovery device	Recovers refrigerant	● Exclusive to R410A
Torque wrench	Tightens flare nut	● Exclusive for Ø12.7 mm, Ø15.9 mm
Pipe cutter	Cuts pipes	○ : R22 (Existing article)
Refrigerant cylinder	Charges refrigerant	● Exclusive to R410A ID : Refrigerant name entered
Welding machine/ Nitrogen gas cylinder	Welding of pipes	○ : R22 (Existing article)
Refrigerant charging balance	Charges refrigerant	○ : R22 (Existing article)

## Refrigerant piping

- Piping material used for the conventional refrigerant cannot be used.
- Use copper pipe with 0.8 mm or more thickness for Ø6.4, Ø9.5, Ø12.7mm.  
Use copper pipe with 1.0 mm or more thickness for Ø15.9mm.
- Flare nut and flare works are also different from those of the conventional refrigerant.  
Take out the flare nut attached to the unit of the air conditioner, and use it.

# 3 SELECTION OF INSTALLATION PLACE

## ⚠ CAUTION

**Do not install the air conditioner at a place where combustible gas may leak.**  
If gas leaks and is collected at surrounding the unit, the production of fire may be caused.

**Upon customer's approval, install the air conditioner at a place where satisfies the following conditions.**

- Place where it can be installed horizontally.
- Place which can reserve a sufficient service space for safe maintenance or check.
- Place where there is no problem even if the drained water flows.

**Apply electric insulation between metal section of the building and metal section of the air conditioner in conformance with the Local Regulation.**

**Avoid the following places.**

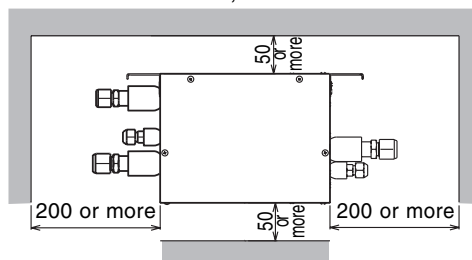
- Salty place (seaside area) or place with much gas sulfide (hot spring area)  
(If selecting such a place, a special maintenance is required.)
- Place where oil (including machine oil), steam, oil smoke or corrosive gas generates.
- Place where a device generating high frequency (inverter, non-utility generator, medical apparatus, or communication equipment) is set. (A bad influence may generate by malfunction of the air conditioner, control error, or noise for such equipment.)

## Installation space

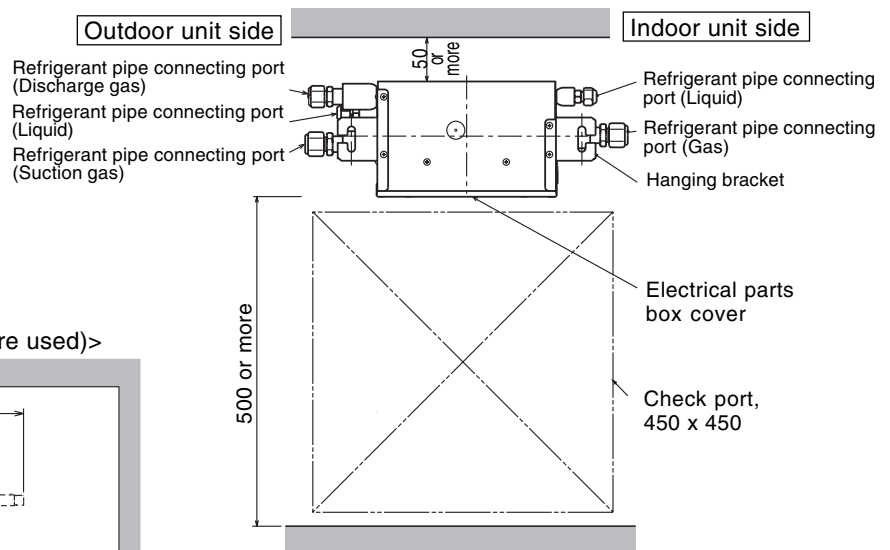
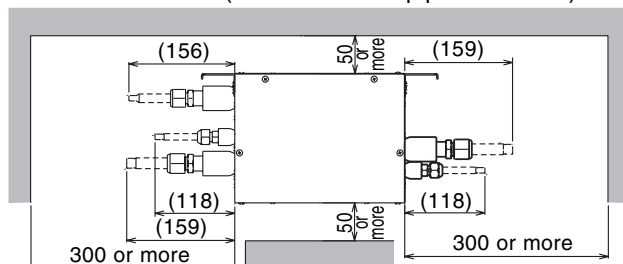
- Make space for installation and service. (Make space to the electrical parts box cover side for service.)
- When installing the unit inside the ceiling, be sure to create a check port.  
The check port is required when the unit is installed and serviced. (Check port: 450 x 450 or more)
- Keep a clearance of 50 mm or more between the top panel of the unit and the ceiling.
- The length of a connection pipe to the indoor unit should be 15 m or less.

### <Installation Space>

<RBM-Y1121FE, RBM-Y1801FE>



<RBM-Y1121FE (When attached pipes are used)>



**⚠ WARNING**

If the foundation is not sturdy enough, the unit may fall and cause personal injury.

Improper installation may cause the unit to fall.

**To prevent damage on the Flow Selector unit or personal injury, follow the instructions below.**

- ### External View



# 4 INSTALLATION OF FLOW SELECTOR UNIT (continued)

## Installing hanging bolts

- Considering piping and wiring work after hanging the Flow Selector unit, determine the installation position and direction.
- After determining the installation position of the Flow Selector unit, install the hanging bolts.
- For hanging bolt pitch, see the External View.
- When the ceiling is already installed, draw the pipes to the position where they are to be connected before hanging the unit.

Procure hanging bolts and nuts locally for installing the unit.

Hanging bolt	M10 (mm) or 3/8	2 pieces
Nut	M10 (mm) or 3/8	6 pieces
Flat washer	M10 (mm)	4 pieces

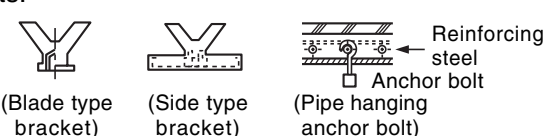
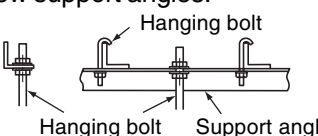
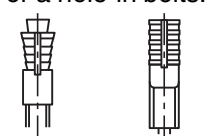
## Ceiling preparation

Because ceiling preparation depends on the building structure, consult with the architect or interior finisher. After removing the ceiling panels, it is important to reinforce the ceiling frames to prevent ceiling panel vibration and to keep the ceiling horizontal.

## Installation of hanging bolts

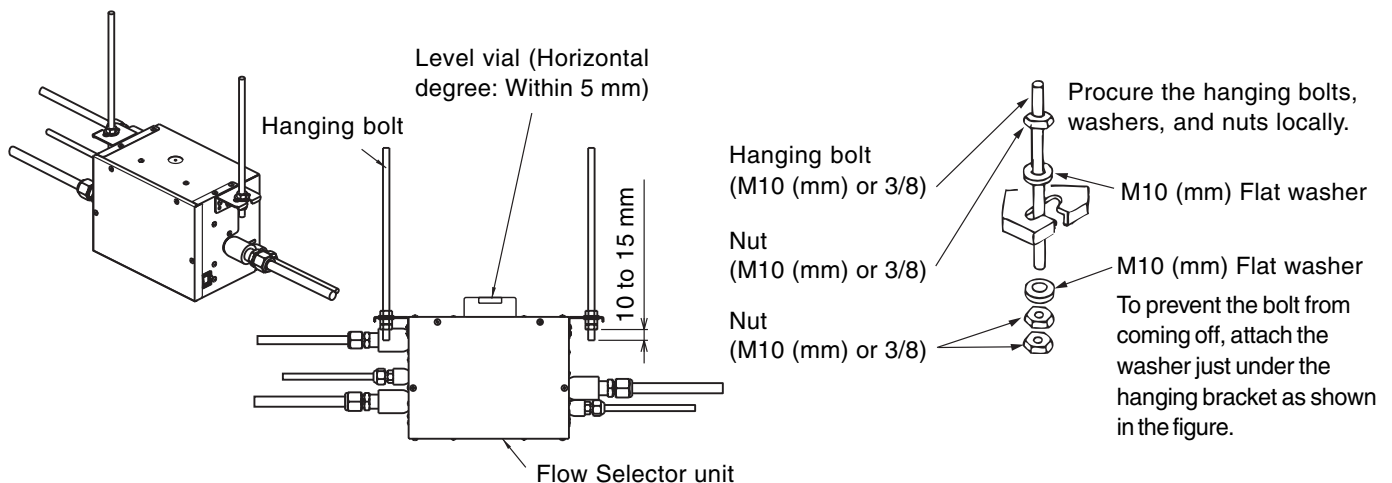
Use M10(mm) or 3/8 hanging bolts (2 pcs, to be local procure).

Matching to the existing structure, set pitch according to size in the unit external view as shown below.

New concrete slab	Steel frame structure	Existing concrete slab
<p>Install the bolts with insert brackets or anchor bolts.</p>  <p>(Blade type bracket) (Side type bracket) (Pipe hanging anchor bolt)</p>	<p>Use existing angles or install new support angles.</p>  <p>Hanging bolt Support angle</p>	<p>Use a hole-in anchors, hole-in plugs, or a hole-in bolts.</p> 

## Installing Flow Selector unit

- Attach the nuts (M10 (mm) or 3/8: to be local procure) and flat washers (M10: to be local procure) to the hanging bolts.
- Put the washers over and under the T-groove of the hanging brackets of the Flow Selector unit to hang down the unit.
- Using a level vial, check that the four sides are horizontal. (Horizontal degree: Within 5 mm).



## REQUIREMENT

Install the Flow Selector unit with the correct direction as shown in the figure. If installed with incorrect direction, the Flow Selector unit will not operate properly.

# 5 REFRIGERANT PIPING

## ⚠ WARNING

If refrigerant gas has leaked during the installation work, ventilate the room immediately.  
If the leaked refrigerant gas comes in contact with fire, noxious gas may be generated.

After the installation work, confirm that refrigerant gas does not leak.

If refrigerant gas leaks into the room and flows near a fire source, such as a fan heater, cooking stove or heating unit, noxious gas may be generated.

## Permissible pipe length and permissible height difference

The length of a connection pipe to the indoor unit should be 15 m or less.

For details, refer to the installation manual attached to the outdoor unit.

## REQUIREMENT

When the refrigerant pipe is long, set the support brackets to fix the pipe at intervals of 2.5 to 3 m.  
If the pipe is not fixed, noise may be generated.

Be sure to use the flare nuts attached to the Flow Selector unit or ones for R410A.

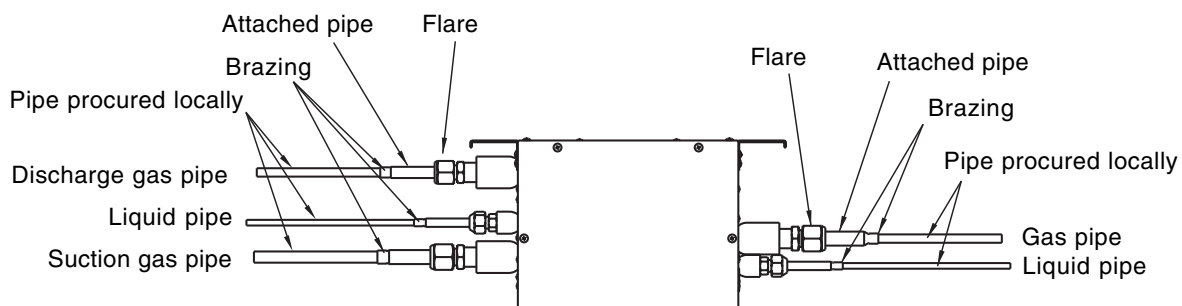
## Piping material and dimensions

Material	Seamless phosphorus deoxidized copper pipe for air-conditioning				
FS unit	RBM-Y1121FE				RBM-Y1801FE
Indoor unit	MM*-AP***	007-012	015-018	024-030	036-056
Indoor unit side pipe size (mm)	Gas pipe	*Ø9.5	*Ø12.7	Ø15.9	Ø15.9
	Liquid pipe	*Ø6.4	*Ø6.4	Ø9.5	Ø9.5
Outdoor unit side pipe size (mm)	Suction gas pipe	*Ø12.7	*Ø12.7	Ø15.9	Ø15.9
	Discharge gas pipe	*Ø9.5	*Ø9.5	Ø12.7	Ø12.7
	Liquid pipe	*Ø6.4	*Ø6.4	Ø9.5	Ø9.5

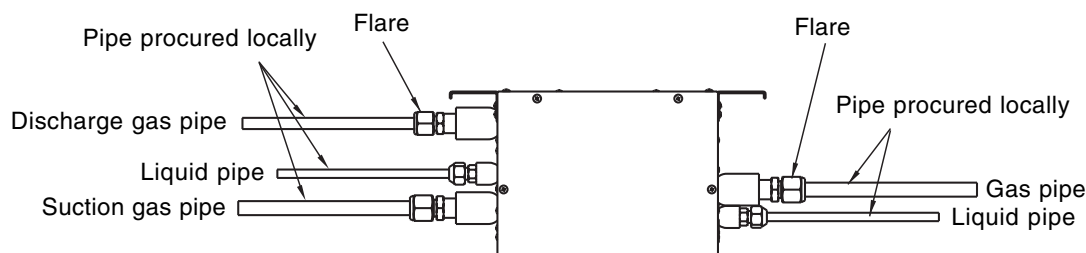
\* Use pipes attached with the FS unit.

The accessory pipes are not flared. Flare them before using its.

### <RBM-Y1221FE (Attached pipes are used for indoor unit 007 to 018 model.)>



### <RBM-Y1121FE, RBM-Y1801FE (For indoor unit 024 to 056 model.)>

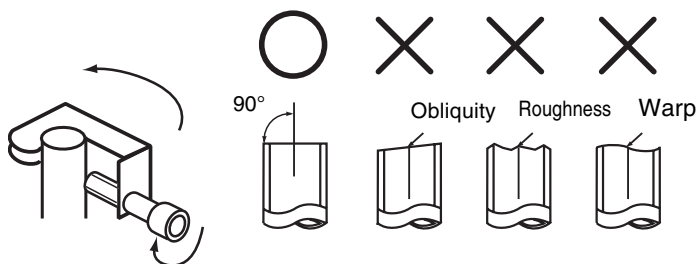


# 5 REFRIGERANT PIPING (continued)

## Pipe forming/End positioning

### Flaring

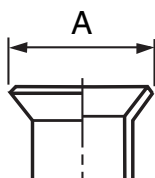
1. Cut the pipe with a pipe cutter.



2. Insert a flare nut into the pipe, and flare the pipe.

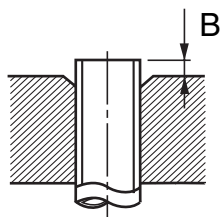
As the flaring sizes of R410A differ from those of refrigerant R22, the flare tools newly manufactured for R410A are recommended.

However, the conventional tools can be used by adjusting projection margin of the copper pipe.



Flaring diam. meter size : A (Unit : mm)

Outer diam. of copper pipe	A $\begin{smallmatrix} +0 \\ -0.4 \end{smallmatrix}$	
	R410A	R22
9.5	13.2	13.0
12.7	16.6	16.2
15.9	19.7	19.2



Projection margin in flaring : B (Unit : mm)

Rigid (Clutch type)

Outer diam. of copper pipe	R410A tool used		Conventional tool used	
	R410A	R22	R410A	R22
9.5	0 to 0.5	(Same as left)	1.0 to 1.5	0.5 to 1.0
12.7	0 to 0.5	(Same as left)	1.0 to 1.5	0.5 to 1.0
15.9	0 to 0.5	(Same as left)	1.0 to 1.5	0.5 to 1.0

\* In case of flaring for R410A with the conventional flare tool, pull it out approx. 0.5 mm more than that for R22 to adjust to the specified flare size. The copper pipe gauge is useful for adjusting projection margin size.

Imperial (Wing nut type)

Outer diam. of copper pipe	R410A	R22
9.5	1.5 to 2.0	1.0 to 1.5
12.7	2.0 to 2.5	1.5 to 2.0
15.9	2.0 to 2.5	1.5 to 2.0

## Connection of refrigerant pipe

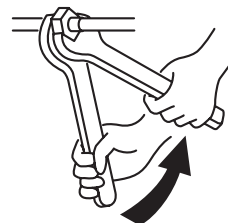
Connect all the refrigerant pipes with flare connecting work.

- Since the atmospheric pressure only is sealed as the sealing gas, it is not abnormal that "Pushu..." sound is not heard when the flare nut is removed.

- Refer to the following table for tightening torque.

Connecting pipe outer diam. (mm)	Tightening torque (N·m)	Re-tightening torque (N·m)
Ø9.5	33 to 42 (3.3 to 4.2 kgf·m)	42 (4.2 kgf·m)
Ø12.7	50 to 62 (5.0 to 6.2 kgf·m)	50 (5.0 kgf·m)
Ø15.9	68 to 82 (6.8 to 8.2 kgf·m)	68 (6.8 kgf·m)

- Be sure use a double spanner for pipe connecting work of the indoor unit.



Work using double spanner

### REQUIREMENT

If an excessive torque is applied, the nut may crack depending on the installation conditions.



## Airtight test/Air purge, etc.

For airtight test, air purge, addition of refrigerant, and gas leak check, follow the Installation Manual attached to the outdoor unit.

### REQUIREMENT

Be sure to use the tool such as charge hose exclusive to R410A.

Do not turn on the power until the airtight test and the vacuuming have finished. (If turning on the power, the incorporated PMV is closed fully and the period until the vacuuming finishes elongates.)

## Open fully valves of the outdoor unit

### Gas leak check

Check with a leak detector or soap water whether gas leaks or not, from the pipe connecting section or cap of the valve.

### REQUIREMENT

Use a leak detector manufactured exclusively for HFC refrigerant (R410A, R134a, etc.).

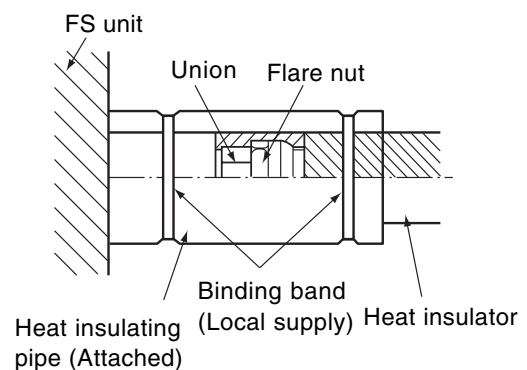
## Heat insulating process

Perform heat insulating for pipes at liquid side and gas side separately.

In cooling time, temperature at both liquid and gas sides becomes lower.

Therefore, perform heat insulating process sufficiently to avoid dewing.

- For heat insulator of pipe at gas side, be sure to use one with heat-resisting temp. 120°C or more.
- Using the attached heat insulating pipe, perform heat insulating process securely for pipe connecting part of the FS units without clearance.



### REQUIREMENT

Apply the Heat insulation to the pipe connecting section of the FS unit securely up to the root without exposure of the pipe. (The pipe exposed to the outside causes water leak.)

# 6 ELECTRIC WORK

## WARNING

- 1. Using the specified wires, ensure to connect the wires, and fix wires securely so that the external strength of the wires do not transmit to the connecting part of the terminals.**  
Incomplete connection or fixation may cause a fire, etc.
- 2. Be sure to connect earth wire. (Grounding work)**  
Do not connect the earth wire to gas pipe, city water pipe, lightning rod, or the earth wire of telephone.  
Incomplete grounding causes an electric shock.
- 3. For electric work, strictly follow to the Local Regulation in each country and the Installation Manual, and use an exclusive circuit.**  
Capacity shortage of power circuit or incomplete installation may cause an electric shock or a fire.

## CAUTION

**Be sure to install an earth leakage breaker.**

If an earth leakage breaker is not installed, an electric shock may be caused.

## REQUIREMENT

- Perform the electric wiring so that it does not come to contact with the high-temperature part of the pipe.  
The coating may melt resulted in an accident.
- After connecting wires to the terminal blocks, provide a trap and fix wires with the wire clamp.
- Store the refrigerant piping line and control wiring line in the same line.
- Do not turn on the power of the indoor unit until vacuuming of the refrigerant pipes completes.

## Wire connections Use the supplied, dedicated wires.

### REQUIREMENT

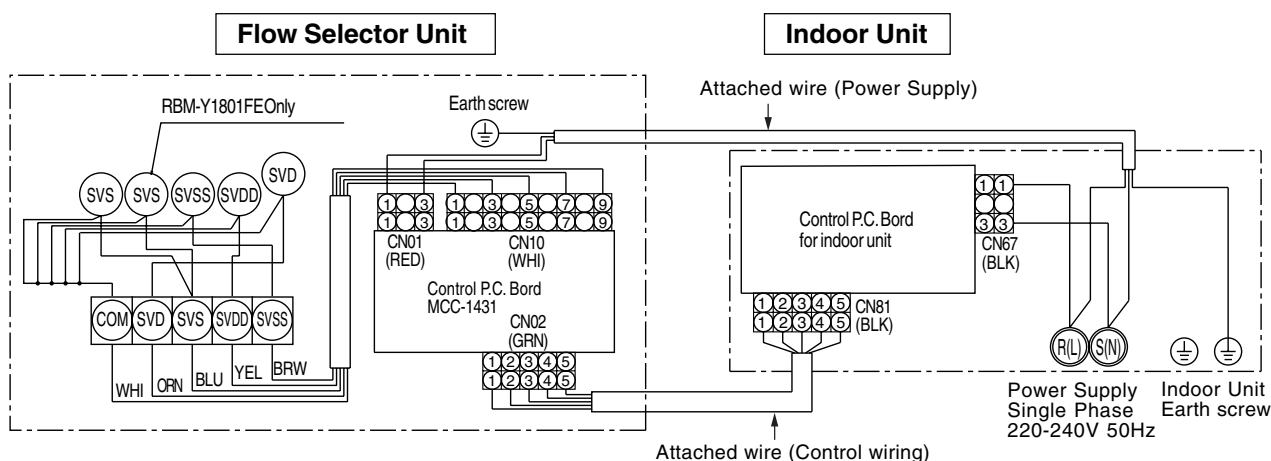
- Check that power is not supplied to the indoor unit before connecting wires.
- For safety, connect wires to the Flow Selector unit first.
- Be sure to put wires through the wire connecting ports on the Flow Selector unit and the indoor unit.

### Connection diagram

- Power is supplied from the connected indoor unit.
- Connect the attached wires (power supply / control wiring) between the Flow Selector unit and the indoor unit.

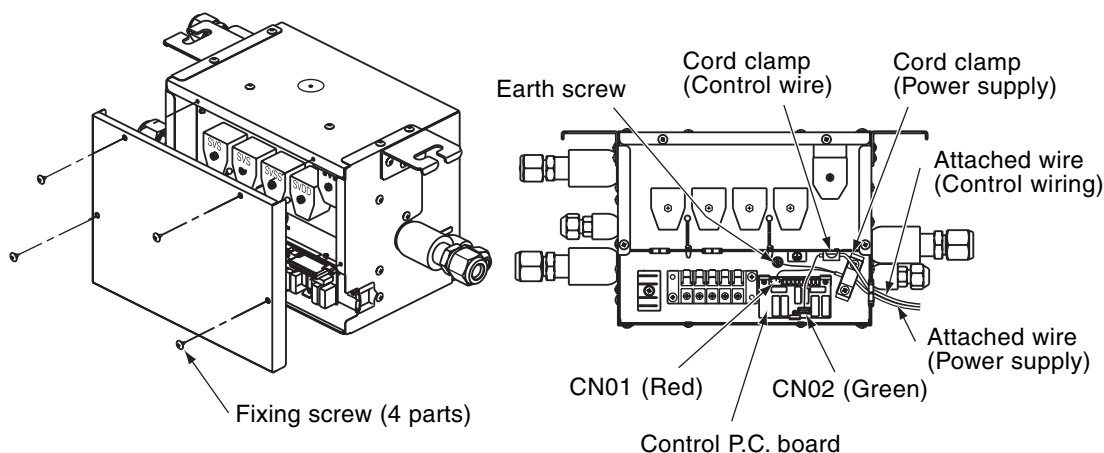
Connect wires as shown in the below figure.

- If the distance between indoor unit and FS unit exceeds 5m, connect by using the extension cable kit (RBC-CBK15FE). (Sold separately)



### Flow Selector unit

- Remove the fixing screws (4 parts) from the cover of the Flow Selector unit.
- Connect the connector (red) of the attached wire (power supply) to CN01 on the control P.C. board.
- Connect the ring terminal of the attached wire (power supply) to the earth screw.
- Connect the connector (green) of the attached wire (control wiring) to CN02 on the control P.C. board.
- Secure the two attached wires with the attached cord clamp.
- (Be careful not to apply tension to the wires and connectors.)
- Check that the wires are not pinched, and then attach the cover.



# 6 ELECTRIC WORK (continued)

## Indoor unit

See also the Installation Manual supplied with the indoor unit.

- Remove the electrical parts box cover from the indoor unit.
- Connect the fastons (R(L) and S(N)) on the attached wire (power supply) to a free area on the R(L), S(N) terminal block for power supply.
- \* When the indoor unit is the high wall type or concealed duct high static pressure type, connect as follows.

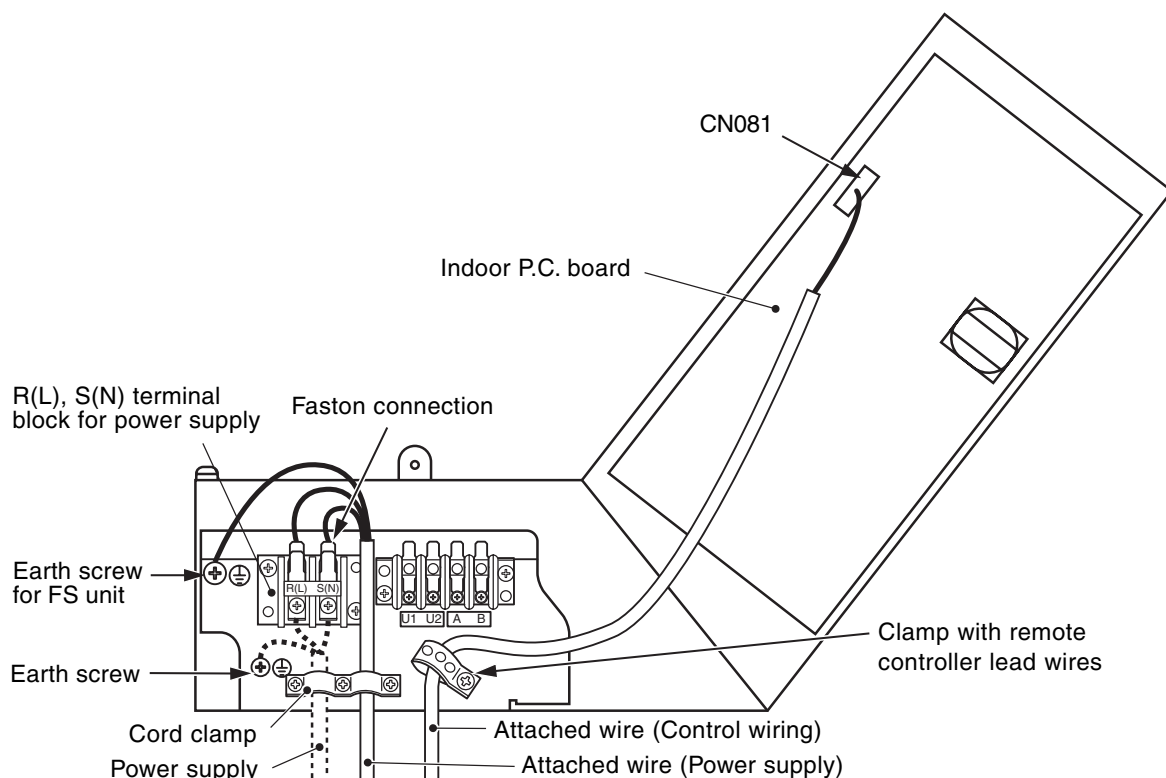
Connect the wire to the lead wires with wire joint on the R(L), S(N) terminal block for power supply, using the following procedure:

Cut the wire joint on each lead wire, and cut the fastons (R(L) and S(N)) on the attached wire (power supply). Then check the R(L) and S(N) phases, and connect the wire and the lead wires with the attached wire joints.

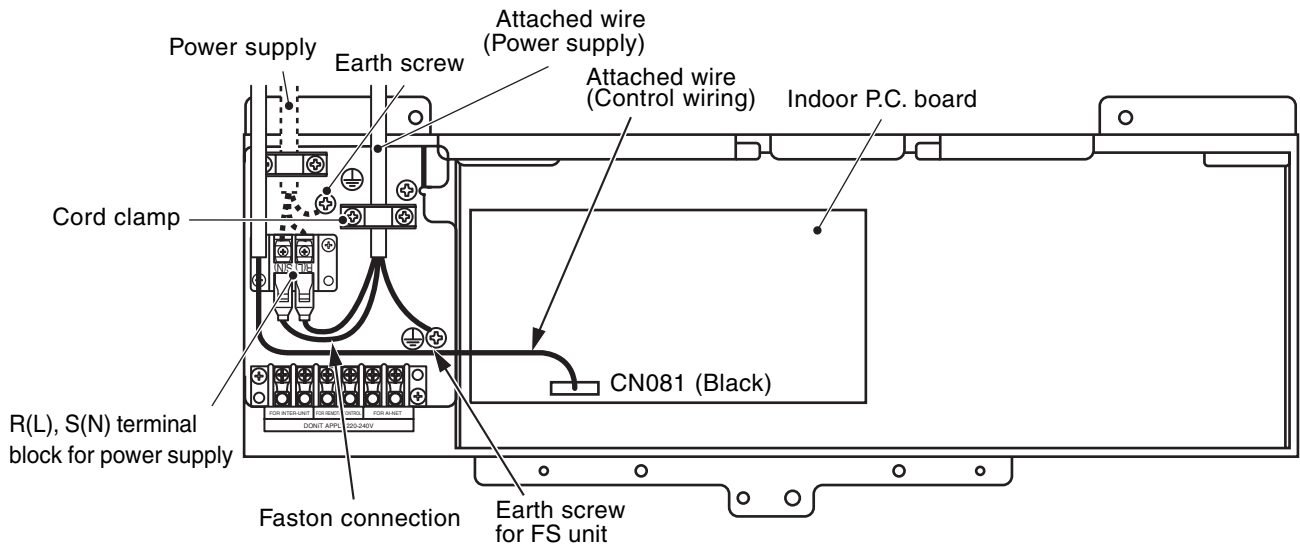
- Connect the ring terminal of the attached wire (power supply) to the earth screw.
- Connect the connector (black) of the attached wire (control wiring) to CN081 on the Indoor P.C. board.
- Secure the two attached wires with the attached cord clamp.  
(Be careful not to apply tension to the wires and connectors.)
- Check that the wires are not pinched, and then attach the cover.

## Connections

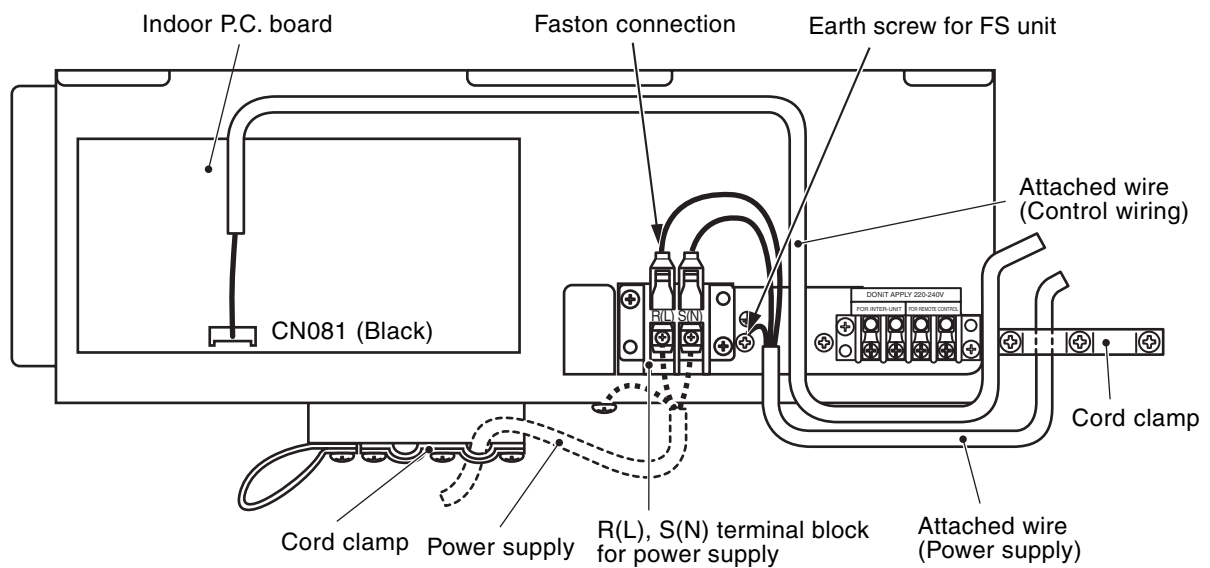
### 4-way Air Discharge Cassette Type (MMU-AP\*\*1H Series)



## 2-way Air Discharge Cassette Type (MMU-AP\*\*1WH Series)

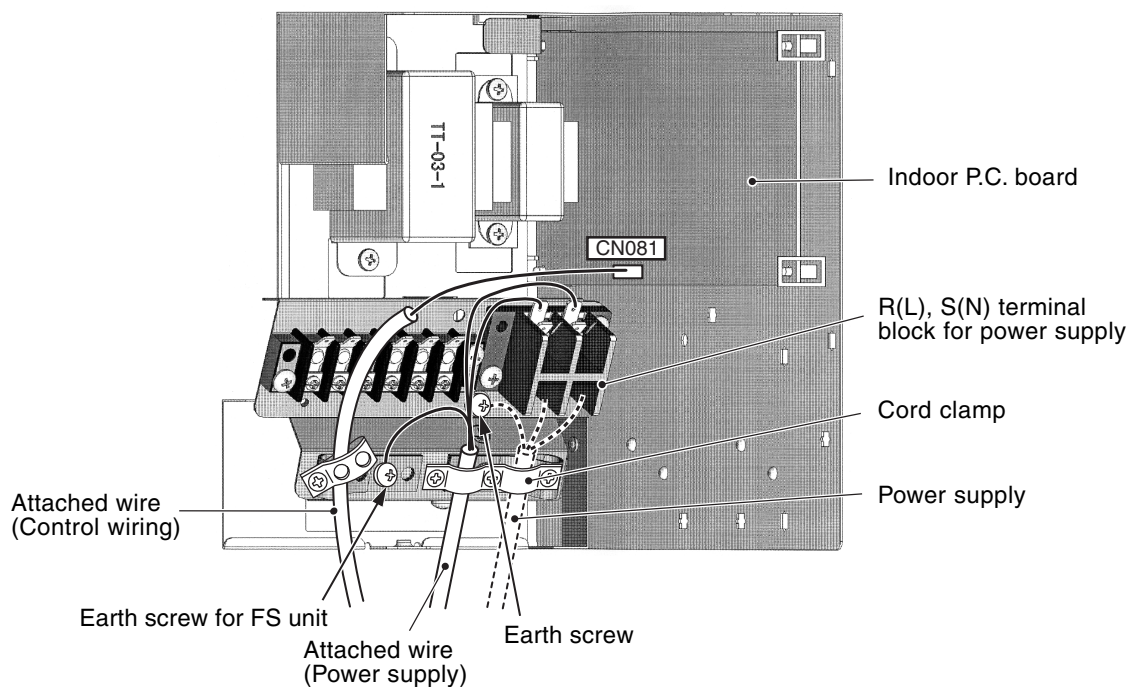


## 1-way Air Discharge Cassette Type (MMU-AP\*\*1SH Series) Floor Standing Type (MMF-AP\*\*1H Series)

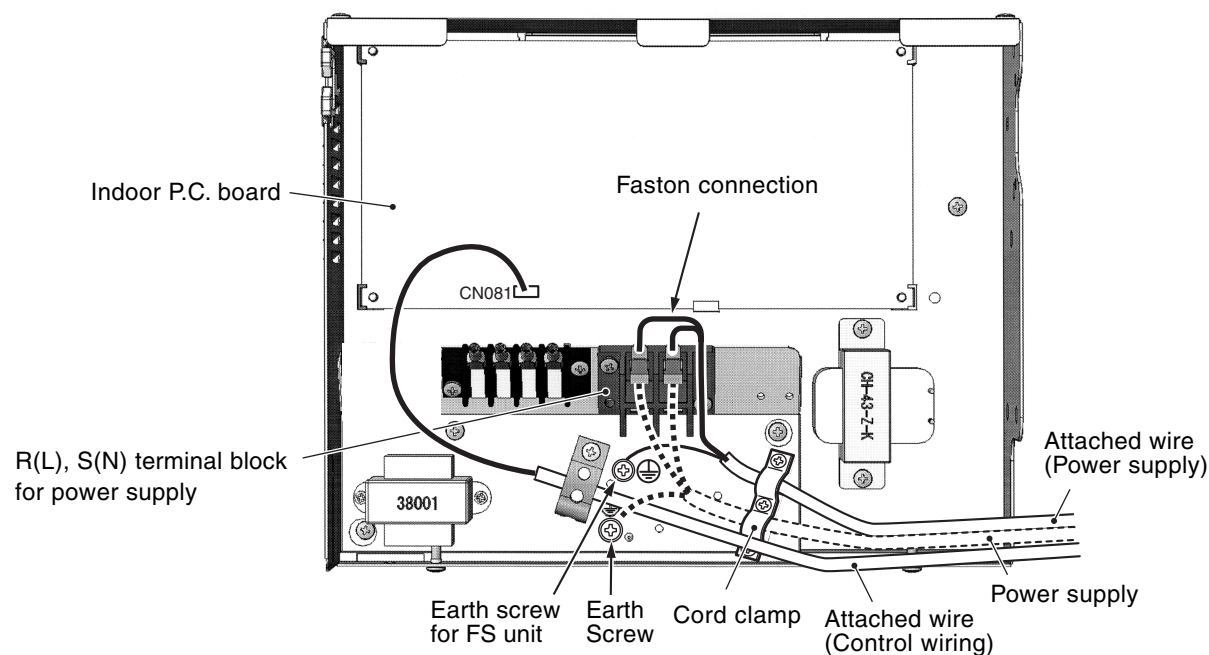


# 6 ELECTRIC WORK (continued)

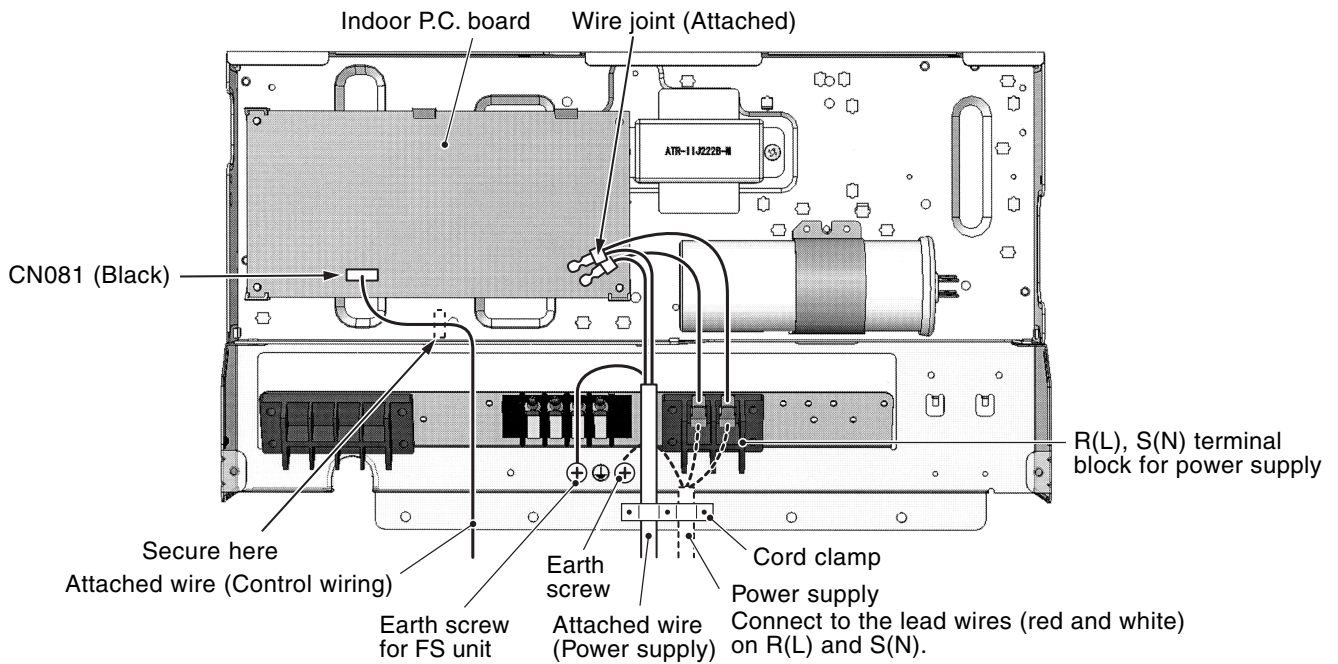
## 1-way Air Discharge Cassette Type (MMU-AP\*\*1YH Series)



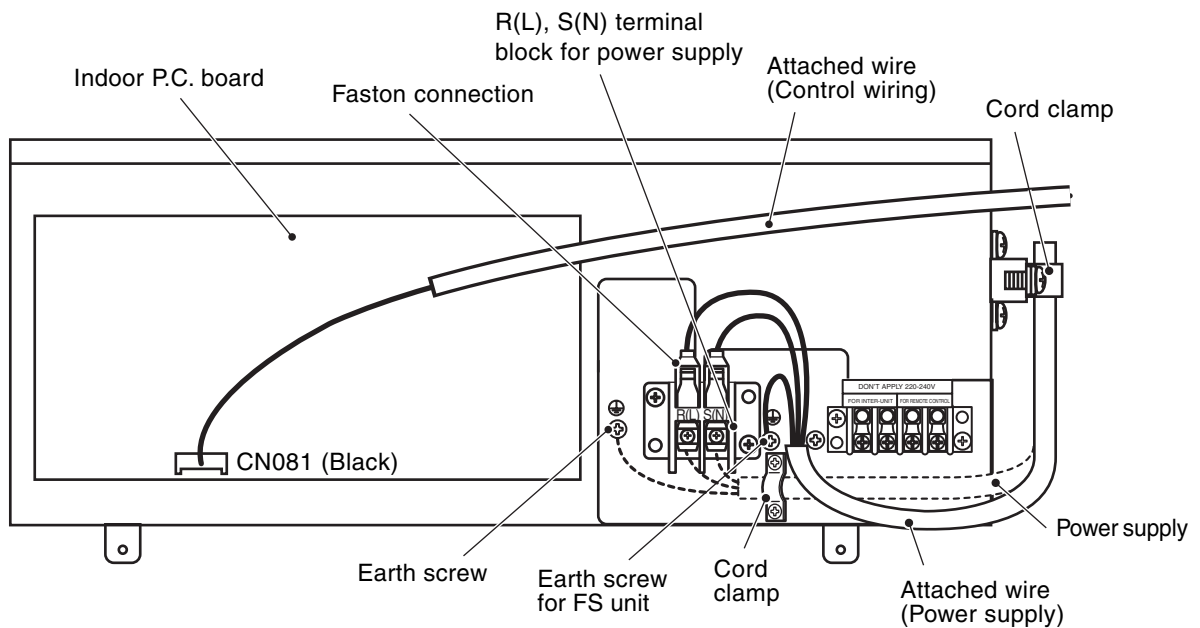
## Concealed Duct Standard Type (MMD-AP\*\*1BH Series)



## Concealed Duct High Static Pressure Type (MMD-AP\*\*1H Series)



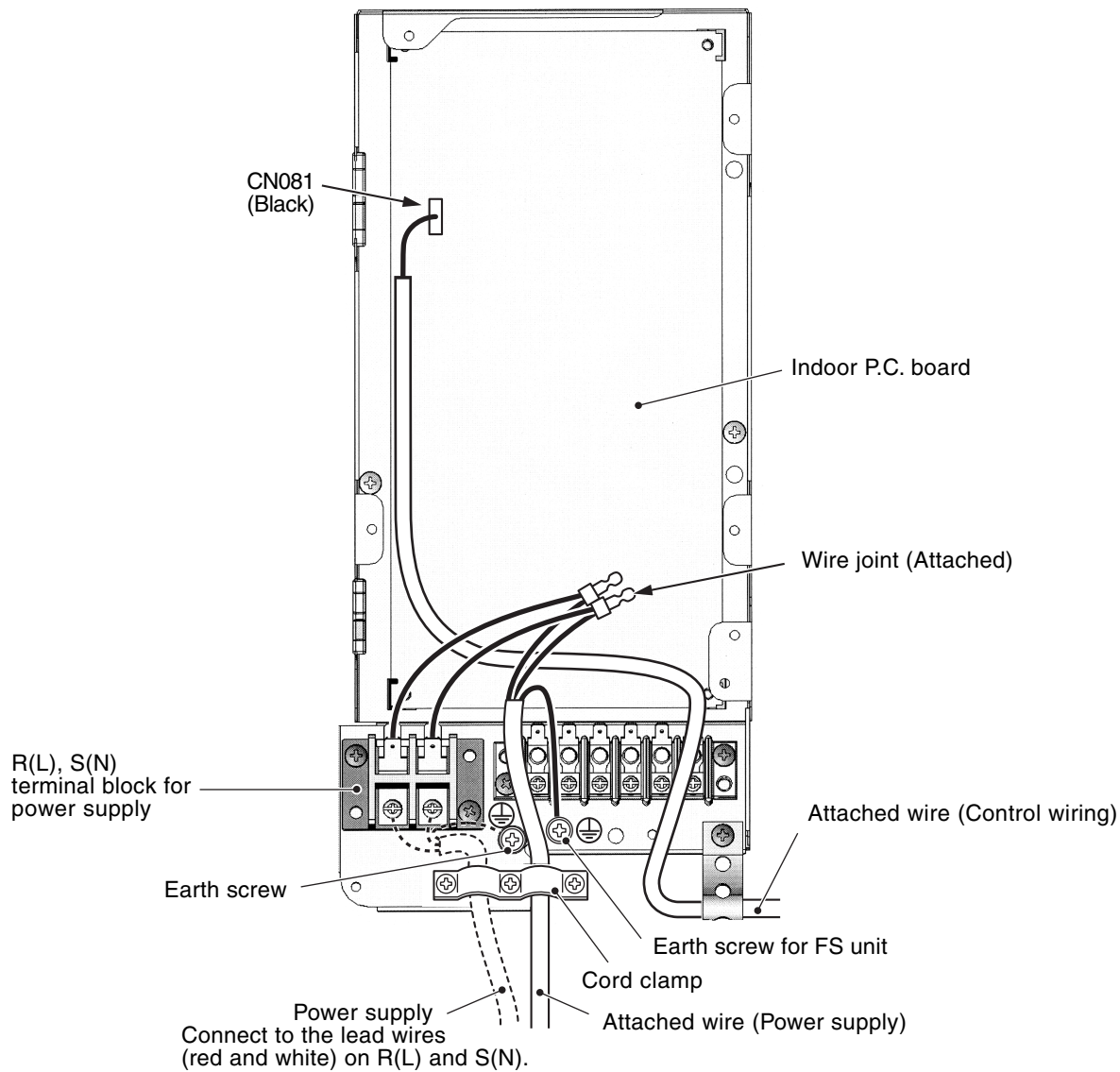
## Under Ceiling Type (MMC-AP\*\*1H Series)





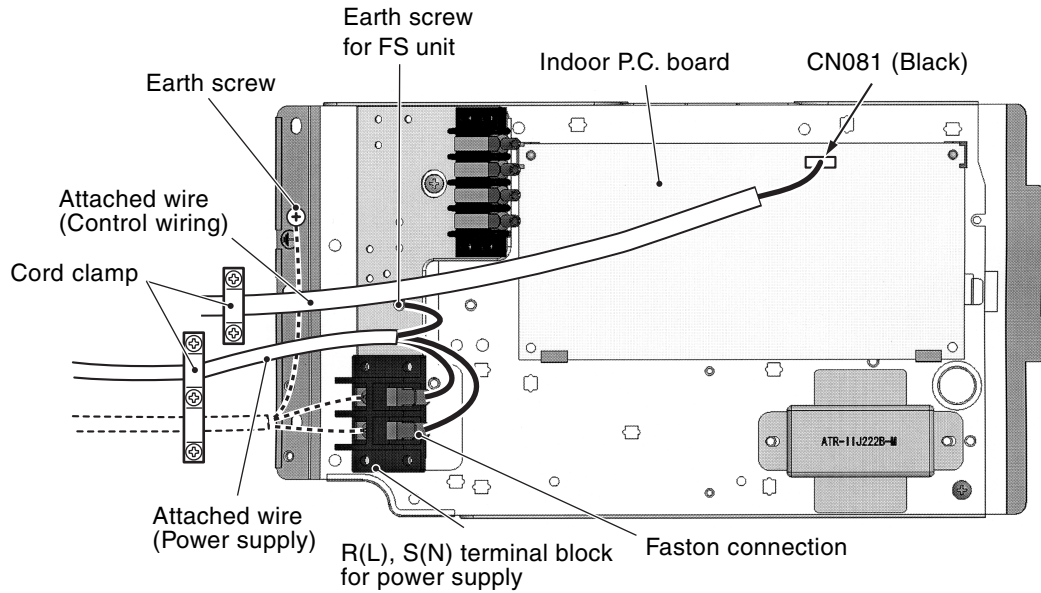
# 6 ELECTRIC WORK (continued)

## High Wall Type (MMK-AP\*\*1H Series)

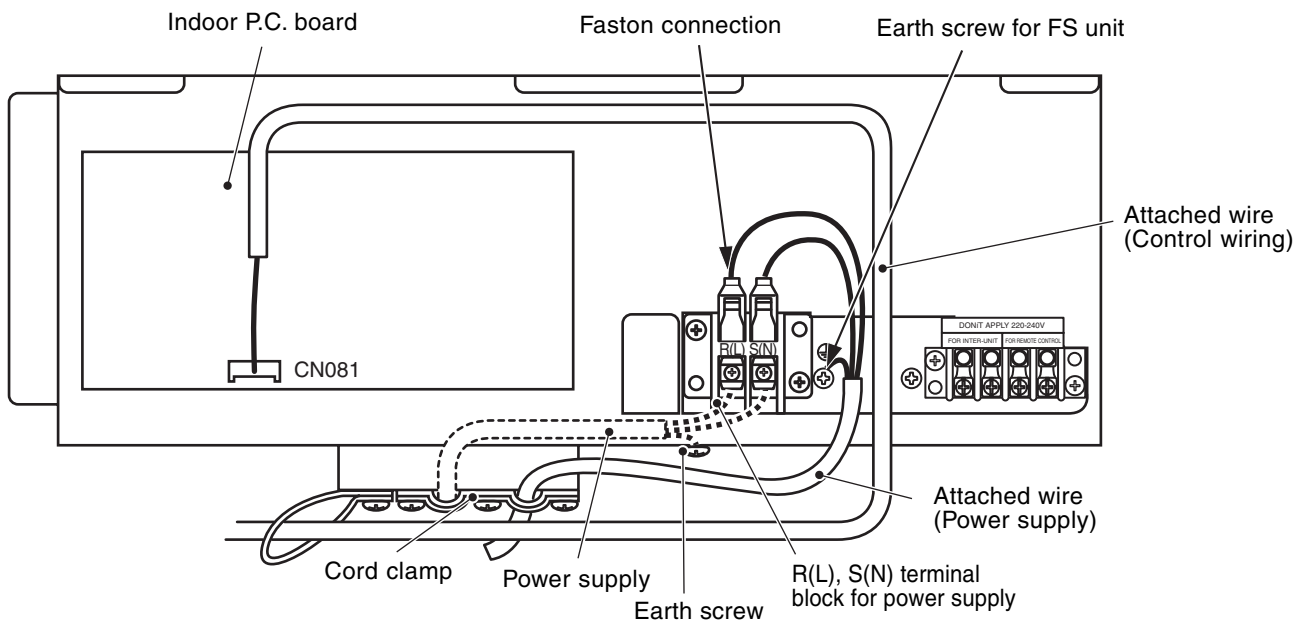




## Floor Standing Cabinet Type (MML-AP\*\*1H Series)



## Floor Standing Concealed Type (MML-AP\*\*1BH Series)



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